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EDITORIAL DEPARTMENT

THE PREPAREDNESS OF CIVIL SURGEONS FOR MILITARY DUTY IN TIME OF WAR.

SHALL we as civil surgeons with fatuous vanity in our resourcefulness in an emergency, permit the lessons taught in a war of the recent past and in the present European war to pass by unheeded? Shall we permit inexperience, political intrigue and red tapism to again cause a stigma of shame to rest upon our unpreparedness and inefficiency in organization, notwithstanding the lesson so poignantly before us.

When we are called into active military service to cope with problems to be met in hurried mobilization of a citizen soldiery? do we or do we not desire to be able without confusion to demonstrate ourselves ready to solve them?

Should we not then, as surgeons, in time of peace unite and formulate a plan whereby, when the necessity arises, we can present to the Federal Government *medical units representing every section of the country,* qualified by surgical skill, keenness of mentality, unblemished character and physical health, so dominant that refusal to accept them (on the ground of departmental objections or supposed political contingencies) would recoil with ignominy upon the Government itself?

For example, objections could be raised on the ground of want of fitness of the medical unit and an individual examination demanded before the granting of a commission. Physicians who have been in active practice for ten years or more, in their devotion to the practical side of medicine and surgery, have not been able to retain their one time knowledge of some of the collateral branches of medicine which they delegate to specialists. Thus it follows that a student without practical experience, fresh from a medical college, would be able to pass a better theoretical examination than a physician or surgeon of long experience. We have no doubt which of the two would be most efficient for duty in time of war. Have you?

Theory is no criterion of efficiency as we who have had experience with hospital internes know.

The subject of medical efficiency is a large one, so large that it is with hesitancy we approach it. We would not do so had we not as a medical officer of the United States Navy during the Spanish-American war been detailed to serve a short tour of duty in charge of two of the divisions of the emergency hospital at Camp Wyckoff, where we witnessed such indescribably

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horrible effects of inefficiency that it is with a shudder we recall them at the present time.

In all the published accounts we have read concerning national preparedness for war emanating from statesmen, we have yet to learn of the advocacy of preparedness by surgeons of the country for military service. It seems to be taken for granted that the medical department, one of the most important divisions of the army and navy, requires no training or organization of its prospective recruits; that it can take care of itself; that when a call for volunteer medical officers goes forth, there will be an enthusiastic response. So there will be by untrained, inefficient, legally qualified physicians, but incompetent to perform the duties required of them.

* * * * * * *

There is no nation so well equipped—there is no nation so poorly equipped, as we are at the present time, to respond to an emergency war call for skilled medical officers. This statement seems contradictory, yet it is, nevertheless, true. We are rich in material for competent medical men, but miserably poor in all manner of medical equipment; enthusiastically patriotic but without organization. No man of the hour has yet arisen to take the initiative in organization.

These negative and positive qualities could be within a year moulded into a positive affirmative of efficiency.

It is, of course, understood that in time of war the centralization of power would rest with the departments of the Army and Navy, with the Secretaries of the respective department in charge, under whom the Surgeon-Generals would act.

The President and the Secretary of War have announced that a scheme for the reorganization of the Army will be presented to Congress at its present session, which will increase the military establishment. In view of this the Southern Medical Association passed preambles* in consonance with the following resolution:

"Therefore, be it resolved by the Southern Medical Association, in session at Dallas, Texas, that the Secretary of War, be petitioned to make adequate provision in the reorganization of the Army about to be presented to Congress for a sufficient number of medical officers for the regular establishment, which provision should aggregate a proportion of medical officers of, at least, seventy-five hundredths of one per cent of the enlisted strength of the Army, or such number as the Surgeon-General of the Army may deem necessary, and

"Be it further resolved that the Secretary be petitioned to make provision in this reorganization for the expansion of the Medical Department at the beginning of war, by calling into service in the Medical Reserve Corps physicians from civil life who have been instructed in their special duties as medical officers in our summer camps, and otherwise as the War Department may see fit."

* * * * * * *

To form a Reserve Corps is a matter of the most vital importance. The department, association, committee or individual who takes the initiative in such an organization has an efficient nucleus from which to select the preliminary formation. We refer to the members of the American College of Surgeons.

The Medical Corps of the Army and Navy are unquestionably efficient in their knowledge of the regulations and routine of the service to which they belong. They are, in a word, administrative officers. The Navy surgeon is skilled in the knowledge of ship sanitation and hygiene and is always in readiness to solve problems of disease as they occur on board ship. These problems, in times of peace relate particularly to contagious diseases, their dissemination, treatment and prevention. Excluding these problems the naval surgeon's duties are simple. Life on ship board at sea is conducive to health and it is only occasionally that the Surgeon is called upon to treat other than ordinary ailments. His practical experience with internal diseases or with surgical conditions, is in no wise equal to that of a physician or surgeon in civil life in the injoyment of a large or varied practice by virtue of his knowledge and ability to apply it.

In the practice of medicine and surgery, theoretical knowledge is but a foundation upon which is built the efficiency of the application of practical experience.

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* See page 46.

What has been said of the Naval Surgeon applies as well to his brother, Surgeon of the Army. The latter is well informed in camp sanitation and field hospital organization.

The officers of the Naval Militia, National Guard and Reserve Corps have, by instruction, reached a certain degree of administrative ability. Many members of these organizations have likewise, marked hospital training and surgical ability. These latter should be separated from the merely ornamental and given commissions by virtue of their experience.

The traumatisms of railroad, mine developments, construction work, accidents due to city traffic and gun-shot wounds met with daily in the surgical wards of hospitals, are as formidable as the wounds of modern warfare. Technical skill, of course, counts, but infection is the enemy that will confront the surgeon, and who, we pray, has had greater experience and who better qualified to oppose such an enemy than our hospital surgeons, assisted by the workers in the research laboratories?

There are at present about four thousand surgeons scattered throughout the country, whose qualifications have been investigated and whose competence as surgeons has been tested by a board of leading surgeons of the land; these surgeons, with internists of a like standing, pathologists, roentgenologist, dental surgeons, and physicians engaged in research work, together with thousands of medical students would be willing to receive instruction to fit them for duty as members of the hospital corps, to form a reserve corps adequate in number and efficient in ability.

If the Medical Departments of the Army and of the Navy are unable at once to initiate some plan of forming such a reserve corp capable of meeting all exigencies and arrange a system for its instruction, some authoritative body should do so. It seems to us it would offer a profitable field of endeavor to the American College of Surgeons, The American Medical Association or State Medical Societies to do so. Co-operation and support from the National Government could, without doubt, be secured, at least to the extent of granting permission to the corp to attend military schools of instruction and to participate in the manœuvers of the National Guard and in their encampments. Under the proper impetus a patriotic body of medical men could be united with profit to themselves and to the country.

* * * * * * *

*"That the most urgent need is the organized units of civilian surgeons with full personnel, all carried on record in time of peace with the full equipment bought and stored in the most convenient state by the National Government. These units could be best grouped around medical universities. Thus, there would be a Columbia University unit with a personnel and equipment complete for a thousand bed hospital, so that on one week's notice it could move forth to establish at a designated point a hospital equipped and manned with a complete personnel such as a city hospital possesses."

JOSEPH J. O'CONNELL, M.D., LATE HEALTH OFFICER OF THE PORT OF NEW YORK.

Dr. O'Connell was called from the ranks of practicing physicians to a conspicuous place in the public service and acquitted himself so as to reflect glory on the profession he loved so well. His problem was "The Sanitary Control of a Maritime Commerce"; to use his own happy descriptive phrase—"It was a problem full of the romance and mystery of strange places and strange people; it smelled of the salt of the sea." To this problem Dr. O'Connell devoted a mind singularly direct and rapid in its processes and accurate in its judgment with a heart that was rich in compassion for the weak. It is difficult to choose from among the multitude of his achievements—two of great scientific value were his constructive equipment and organization of the Quarantine Laboratory and his scheme of sanitation among typhus contacts. The adoption of Dr. O'Connell's scheme of typhus sanitation by the German Powers will securely anchor the fame of the late Chief of the Quarantine Service, but it was his lovable personality which gripped the hearts of all those who knew him.

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* Karl Connell, M.D., "Observations on Sanitary Organization and Surgery and the Central Empirics," Clinical Congress of Surgeons, Sixteenth Annual Session, Boston, October 28, 1915.

Original Articles

OBSERVATIONS UPON THE CURE OF SYPHILIS.[*]

Presented by authority of the Surgeon-General, U. S. Army.

By **CAPTAIN MATHEW A. REASONER,**
Medical Corps, U. S. Army, Washington, D. C.[†]

THIS paper is merely a preliminary report of a line of investigation having for its ultimate purpose, the study of the effect of treatment in syphilis and the percentage of cures obtained by various methods and in various stages of the disease with a further attempt to work out some problems by experimental methods upon animals. This work involves both the practical results and their theoretical interpretation. Due to the relatively small series and short length of time this series has been studied, the conclusions reached may not now be more than tentative in their entirety. Carried over a sufficient length of time, some definite conclusions should be attained along the following lines: Is syphilis curable and if so under what conditions? What is the criterion of a cure? Under what method of treatment do the manifestations yield most readily and by what methods are the greatest proportion of cures obtained? Are there variations in strains of treponema pallidum?

In March, 1911, the Surgeon General adopted a form of syphilitic register to be made out for each case of syphilis at the time of diagnosis, and this register, through medical officers, follows the soldier until separated from the service or believed to be cured, when it is forwarded to the Surgeon General's office for file. The form is well adapted for keeping an accurate record of the disease and its progress as well as Wassermann reactions and treatment. There are now on file some 3,500 registers and from a number of favorable registers we have been able to locate one hundred and thirty men whose history warranted an investigation as to the possibility of cure. We are now able to present final reports upon fifty-one of these. The minimum requirement adopted is "one year without treatment, no manifestations and several Wassermanns, none of them positive." A tentative standard of cure adopted by the army includes a negative provocative Wassermann and a negative luetin reaction at the end of this period. While certain lines of treatment have been recommended, none have been specifically laid down and medical officers have been free to follow their own ideas regarding treatment. Some confusion necessarily follows in classification and analysis of cases but in the end a wider field is covered and the conclusions reached should be of greater value. An added value would seem to pertain to the fact that data concerning cured cases is a summation of the work performed by medical officers of the army in all parts of the United States and its possessions as checked up by Wassermann and luetin reactions, thereby to a large extent eliminating the personal element.

Request was first made for two Wassermann reactions at intervals of from two weeks to a month and a report of complete physical examination having special reference to the arterial and nervous systems. Luetin (from a supply kindly furnished by Dr. H. Noguchi of the Rockefeller Institute) and salvarsan or neosalvarsan for the provocative test was then forwarded for each negative case. The directions furnished were, that following the administration of salvarsan (0.2 to 0.4 gm.) or neosalvarsan (0.45 gm.) blood specimens for the provocative Wassermann should be taken at the end of 24, 48, and 72 hours and at the end of ten days. The luetin was injected four days following the application of the provocative test. Spinal puncture was requested wherever practicable; but unfortunately was only obtained in two cases. It is well recognized that without the spinal fluid findings, our results can not be accepted in toto.

The Luetin Reaction.

According to Noguchi[1] the luetin reaction is due to an allergic condition appearing after the acute stage has passed and this allergic condition "persists so long as the infecting agent remains in the body and it requires a most energetic treatment to remove it. Should the destruction of the treponemata be complete, the allergy must cease to exist beyond a certain length of time." He further considers that in positive cases failing to give a luetin reaction, the prognosis is unfavorable.

Kafka[3], in a series of 139 cases, found luetin reactions as follows:

Latent general syphilis	62%	
Syphilis, congenital	72%	(weak reactions)
Syphilis, cerebral	90%	(strong reactions)
General paresis	52%	(weak reactions)
Tabes	100%	(strong reactions)
Syphilis, primary	Almost never present	
Syphilis, tertiary	Almost always present	

Jeanselme[4] reported 100 per cent positive in secondary, tertiary, tabes and paresis but in a later report[5] speaks in a more conservative manner. Vedder and Borden[6] give results of comparative examination by Wassermann and luetin tests of 744 inmates of the National Soldiers' Home of whom 80 per cent were from 50 to 80 years of age. The Wassermann showed 20.82 per cent positive (using cholesterinized antigen) and 32.11 per cent, or over one-third more, reacted positive to luetin. There were only 7.66 per cent positive by both tests but the total of those positive to one or the other or both amounted to a total of 45.4 per cent of the number of inmates.

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[*] Read at the Annual Meeting of the Medical Society of the State of New York at Buffalo, April 27, 1915.

[†] Continuing certain investigations initiated by Capt. H. J. Nichols, Medical Corps, U. S. Army, at Army Medical School, Washington, D. C.

It is believed that luetin is of no value in the diagnosis of primary or untreated secondary syphilis. In untreated syphilis of even several years duration, the luetin will quite probably be negative with a positive Wassermann. Its effect is brought out by treatment. The emulsion loses its efficacy after a period of some months. It is possible to render both the serum and spinal fluid negative while the luetin test remains positive and if such condition persists, the prognosis should be guarded. A doubtful luetin reaction is not of so much value as a partial Wassermann. In cases of doubtful reaction, the test should not be repeated within a month. In nervous syphilis it is of less value than the complete spinal fluid examination and Wassermann of the blood. It is of more value in cases of longer duration which have been well treated and therefore are more attenuated. Also in visceral syphilis and tertiary syphilis without visible manifestations it is of great value. This test is only to be used as an adjunct to clinical observation and the Wassermann reaction and spinal fluid examination and can in no way displace them. Positive results have a confirmatory value, negative results are not final. As stated above in our series the luetin was injected on the fourth day after the provocative dose, thus obtaining the benefit of the salvarsan in re-enforcing the luetin reaction.

Wassermann Reaction.

Up to the present time there has been no standard Wassermann method adopted by the army, though the larger part of this series were performed with a 0.4 per cent cholesterinized alcoholic solution of human heart as antigen. It is believed that this gives more delicate and accurate results and when used for the determination of cure, is certainly superior to other antigens. A double or triple antigen has advantages for diagnostic purposes as thereby some false reactions are ruled out. It must be admitted, however, that with a cholesterinized antigen for purposes of diagnosis, a + or + — reaction does not have so much significance. As Southard[7] has pointed out, the doubtful reactions which in their serum examinations averaged 4 per cent, most often resolved themselves into negatives, upon repeated examinations. A partial Wassermann reaction is of more value in spinal fluid examination, and in certain provocative reactions is susceptible of some interpretation. The results given in this paper are based upon the "two plus" system. As a result of several years observation of the Wassermann both from the laboratory and from the clinical standpoint, but more especially from the latter and as performed by various methods and by competent laboratory workers, the writer has been impressed with the fact that there is a considerable variation from time to time in the strength of the reaction of an individual (either treated or untreated) which can not be explained in the light of our present knowledge. This subject has been discussed by Craig.[8] Occasionally, though rarely, with apparently the best technique, a normal individual gives a positive reaction which will not ordinarily be obtained upon repetition. For our own guidance we have formulated the following rule: In an individual without confirmatory manifestations or history, one positive Wasserman reaction should be repeated and in an individual with suspicious manifestations, a single negative Wassermann should not be accepted as final.

The Provocative Reaction.

In 1910, Gennerich[9] called attention to the value of the "provocative reaction." It is of especial value in the diagnosis of the so-called latent syphilis or obscure conditions presenting a negative Wassermann or for the determination of cure. In our opinion this is the most delicate and valuable and has the most general application of any of the tests available for these purposes. Fordyce states in a personal communication that he has found what might be termed a "re-enforced provocative" (repeated salvarsan injections), will in a limited number of cases bring out a positive Wassermann which has remained negative to one injection. It has not in our series seemed practicable to adopt this refinement, relying rather upon future examinations to check up results. To illustrate the value of the straight Wassermann reaction as compared with the provocative test: sixteen of our uncured cases to be mentioned below, averaged six negative Wassermann's and no positive ones, over an average period of one year and nine months after treatment had terminated, and six of these cases which had given two negative reactions at the preliminary examination early this year had averaged eight negative Wassermann's over an average period of two and one-half years after treatment had terminated. In the majority of these cases cholesterinized antigen was used. The provocative and luetin tests showed them to be uncured and further treatment necessary.

Immunity Processes.

There is a great variation in the reaction of individuals to syphilitic infection, but there is little evidence to indicate that this difference is due entirely to protective substances in the individual. If the intensity of syphilitic involvement were dependent alone upon the resistance of the host, it would seem that malignant cases should be more subject to superinfections, but such is not the case. Flexner[10] concludes that a barrier protects the nervous system from blood contaminations and that this barrier is not absolute but may be broken down. The cerebrospinal fluid probably serves as a means of interchange between the capillaries and nerve cells. Syphilis presents itself primarily as a blood vessel disease. Many authors have noted the large percentage of secondary involvement of the spinal fluid, generally of small degree. Dreyfus and Assmann quoted by Nonne[11] found 78 per cent of early secondary involvement, but later this had increased to 30 per cent. If we accept these conclusions it would seem probable that in by far the larger proportion of this number showing early involvement, there has been only an absorption of toxin or inflammatory products which has managed to penetrate the barrier and the treponema have not gained entrance. Otherwise, we must assume a most wonderful repressive or treponemacidal power upon the part of the central nervous system. The absence of complement in normal spinal fluid, the relatively small amount of antibodies capable of generating as well as the deductions of Flexner concerning the protective barrier are rather against such an assumption.

The Strain Theory.

In speaking of strains of treponemata, the term "strain" is used merely as a matter of convenience, meaning thereby a member of the same species possessing some constant minor characteristic peculiar to itself but otherwise the same. Are there reasons for believing that there are differences in strains of spirochetes, either of invasive power or of predilection for certain tissues such that after generalization has taken place, some cases are predestined to an unfavorable termination? Will these cases transmit the same type of syphilis to another at any transmissable stage of the disease? Have we reason for believing that there are certain strains of weak, invasive power or lack of affinity for certain tissues which may be readily aborted upon the appearance of the initial lesion or will readily respond to treatment in the later stages? Without going into details, there are many protozoological analogies as well as some animal experimentation, which might serve as ground for such a belief.

For years it has been recognized by some of the leaders, beginning with Fournier and his theory of parasyphilis, that if paresis and tabes were actually due to syphilis, it must be a syphilis different from that usually encountered and for that reason he met much opposition. Later it was conceived, and is now accepted by many that this might be explained upon the ground of a special strain. The relative frequency with which the nervous type transmits itself is especially noticeable. Noguchi[12] considers that there are three forms of treponemata, the thick, the thin, and the medium form, and further states that these forms are constant and that the thick form has a characteristic growth in the testicle of the rabbit. Nichols and Hough[13] succeeded in inoculating a rabbit from the spinal fluid of a case of secondary syphilitic relapse following the administration of salvarsan. Nichols[14] describes it as follows: 1. Thicker body and curves not so deep; 2. Hard, discrete nodule in rabbit's testicle with necrotic center, easily differentiated from loose edematous types obtained from mucous lesions, chancres, etc. Predilection for scrotal side of tunica vaginalis. 3 Short incubation period averaging eighteen days. 4. Generalization and production of lesions of skin and eye.

On January 12, 1915, we inoculated four adult rabbits with the 43rd generation of this strain and on March 28, 1915, or two and one-half months afterward, there was beginning choroiditis in all four cases with rather a marked neuroretinitis in one. Accepting as a working hypothesis that manifest generalization and eye involvement in the rabbit is analogous to high invasive power and nervous involvement in man, it is to the point to state that of nine other strains studies by Nichols, only this one strain presented such characteristics and was obtained as stated from a case of nervous syphilis. Of three other strains (all obtained from chancres) studied for a shorter period of time by the writer, one has seemed to be of this type. In the first rabbit injected in the testicle with this latter strain, there were at the end of the first month, gross changes in the anterior chamber and at the end of two months the opposite testicle was invaded. A second series of five rabbits recently inoculated with this strain seems to be following along the same lines. Dr. Louis Green of Washington, D. C., has in all cases performed the eye examinations. The strain was obtained from a chancre of three days duration and fifteen days incubation. Unfortunately, the patient was accidentally killed several weeks past and when we learned of the fact it was too late to obtain possession of the brain. However, whether the evidence be pro or con, we must remember that a rabbit is not a human being and the results obtained by experimentation must be interpreted in the light of such fact.

Preliminary Analysis of Histories Taken at Random.

By way of a preliminary study of the relation between "amenability to treatment" and other factors, a small series of 273 well kept syphilitic registers was taken at random from the files. There were 154 cases in which either the Wassermann remained positive or manifestations persisted. There were 119 in which the Wassermann became negative and manifestations disappeared.

	Seen first week	Seen during 2nd, 3rd and 4th weeks	Total 1st month	Adequate treatment 1st 4 months	Average time under observation
+ Cases..	22%	26%	48%	20%	1 year
— Cases..	27%	33%	60%	90%	11 months

As was to be expected, the value of early and effective medication is well brought out. There were among those not readily amenable to treatment, five cases averaging six days from lesion to diagnosis, who received satisfactory combined treatment during the first six months to a year or longer and who averaged one year and ten months under observation and in whom a persistent negative Wassermann reaction was not obtained. Two of these were confirmed alcoholics. Among those amenable to treatment were seven cases ranging from one to ten years from lesion to diagnosis (averaging five years) and whose average time of observation was one year and five months. The treatment varied from what would ordinarily be termed excellent in two cases to unsatisfactory in three.

The Results of Abortive Treatment.

Eighteen cases by Constas[15] were seen from two to five days after the appearance of the initial lesion and in all, Nichols demonstrated the treponemata by dark field. Combined intensive treatment was continued for four months in all and longer in those showing a positive Wassermann reaction or manifestations.

Lost to sight	2
Positive Wassermann after one year and six months	3
Remained Wassermann negative	2
Never more than + or + — Wassermann.. Later fulfilled our requirements for cure, (2).	5
One or more + + Wassermans not later than three months then became Wassermann negative and remained so for one year or longer	6
	18

It is an interesting feature that one of the cases which remained Wassermann positive, shortly after a course of two salvarsan injections and ten salicylate injections developed a hemiplegia. I am under obligations to Dr. Constas for permission to quote this series. It illustrates well the variations in response to early and satisfactory treatment.

Report Upon Fifty-One Cases.

Summary of findings in cured and uncured cases:

Negative provocative and negative luetin	20
Positive provocative and positive luetin	3
Positive provocative and positive luetin	12
Negative provocative and doubtful luetin	1
Doubtful provocative and negative luetin	4
Positive provocative, no luetin performed	1
Negative provocative, no luetin performed	6
No provocative performed, negative luetin	1
Frank relapse, provocative and luetin not performed	3
	51

Negative to both reactions	20
Negative to provocative alone	6
Total giving no positive reaction	26
Total uncured cases	19
Total doubtful cases (including negative luetin alone)	6
	51

Approximate Percentages.

Cases one year without treatment, no manifestations and several Wassermanns, none of them positive:

Cured cases (including those negative to provocative alone)	50%
Uncured cases	38%
Doubtful cases	12%
Positive provocative in 16 uncured cases tested	100%
Positive luetin in 16 uncured cases tested	17%

A larger series of cases will show a small number reacting positive to the luetin test and negative to the provocative test as we have found that condition several times in examinations outside of this series. A question might be raised as to the propriety or absolute accuracy of including in the cured list, six cases reacting negatively to the provocative alone. For the following reasons it is believed that the probable error is negligible. The class of cases comprising this series are not the ones in which luetin has its greatest value as they are a class of selected cases in which all syphilitic manifestations have been excluded by careful physical examinations. They are all young men, in whom for the most part the syphilitic condition is a fairly recent condition, the average treatment received was good, and none of them had received recent treatment. A much higher percentage would undoubtedly be obtained in older patients with infections of longer standing and especially in cases of aortitis, tabes, paresis, etc., or in hereditary or congenital syphilis. A series of non-selected cases of equal duration would undoubtedly show a higher percentage of positive reactions to both the luetin and provocative Wassermann. It is not intended that our classification into "cured" and "uncured" be accepted in an absolute sense. This division is made upon the basis of a certain standard and it may be altered upon subsequent examination, which examination will include when possible, spinal fluid examination.

Approximate Percentages of Time Elapsing Between Initial Lesion and Diagnosis.

Cases	Seen within first week	Seen within first month	Seen within first two months	Adequate combined treatment first five months following diagnosis
Cured	8=30%	13=50%	20=77%	13 of 20=65% not including 1 case protoiodide, 1 case mixed treatment=75%
Uncured	2=10%	5=25%	7=36%	1 of 7=14%

It will be seen that the results in this table follow very closely those obtained in the preliminary study. The doubtful cases are not included in the above.

Cases	Average period of observation	Average time, no treatment, no manifestations, no positive Wassermanns
Cured	4 years	1 year, 10 months
Uncured	4 years	2 years, 4 months

Secondary manifestations (excluding two aborted cases) were present in 91 per cent of the cured cases, and it is a reasonable supposition that treatment may have had something to do with their absence in the remaining number. In the uncured cases, secondary manifestations are recorded in only 66 per cent. This is to say the least, highly suggestive.

Wassermanns in Preliminary Examinations Of Cured and Uncured Cases.
(Ordinarily two in each case.)

26 cured cases gave	19 not cured gave	6 doubtful gave
47 negative	20 negative	8 negative
6 + —	11 + —	2 + —
1 + +	6 + +	1 + +
	6 + +	

Wassermanns in Provocative Examinations.
(Average three in each case.)

26 cured cases gave	19 not cured gave	6 doubtful gave
88 negative	24 negative	10 negative
2 + —	14 + —	2 + —
1 +	17 +	2 +
	7 + +	1 + +

Perhaps an undue liberty has been taken or it might be viewed by some in that light, when any case is termed a cure having a + or + — in the provocative reactions. Ordinarily we would not be willing to do so. It was only done in these particular cases after a careful study of the case from every viewpoint and future examinations will determine whether or not we are in error.

We have attempted to suggest some of the more important facts connected with the immunity processes in syphilis and their effect upon both the host and the invading organism. Generalization in syphilis probably takes place early and a highly invasive strain of treponemata may cross the barrier which protects the central nervous system. Evidence available would seem to indicate that there are such strains. Some slight spinal fluid abnormalities may exist early without actual involvment. It is a plausible supposition that a weakly invasive strain would be more readily cured either early or late. Such a theory would be applicable in explaining some of our cures. Due to anatomical and physiological conditions, when once the central nervous system is invaded, cure by ordinary means is hardly to be expected. The ideal time to begin treatment is with the appearance of the initial lesion by which means the greatest number of cures will be obtained. The dark field should be more commonly used as a means of diagnosis. Staining methods are open to more possibilities of error. From the cases quoted above, from the careful study of a large number of other cases as well as from practical experience, we are satisfied that the combined use of mercury and salvarsan (or as a second choice, neosalvarsan) by the intensive method and as early as possible, gives the best results. It is believed that neither mercury nor salvarsan should be given to the exclusion of the other. From a study of seven hundred case histories, salvarsan is undoubtedly more powerful and superior to neosalvarsan but excellent results have been obtained in some cases with neosalvarsan. Two of the cases we have listed as cured, received only early mercurial treatment by way of the mouth, one protoiodide and the other mixed treatment for the first six months. Later, however, both received salvarsan. Such results are the exception rather than the rule. Treatment by way of the mouth is not good practice and does not give the best results. The best effects will be obtained from mercury given by inunction or injection. The latter method is preferable in the army. Potassium iodide has no proper place in the treatment of primary or secondary syphilis and its field in tertiary is limited. The Wassermann serves as a most valuable guide to treatment.

Our small series of cases has shown 50 per cent of possible cures among those who had gone one year or longer without treatment, with no manifestations and several Wassermanns, none of them positive. It is possible that this ratio will vary in a larger series, and quite certainly this percentage will be reduced to some extent by subsequent examinations.

The provocative and luetin reactions and lumbar puncture with complete physical examination, serve so far as we are able to say at the present time as a means of determining cure. The straight Wassermann reaction even with cholesterinized antigen and frequently repeated over a year or more is not sufficient evidence upon which to base an opinion as to cure. Luetin has a more restricted field and is of greatest value in conjunction with the provocative. In its proper place, positive findngs are of value, negative findings are not final. In our opinion the selected character of cases was a factor in producing the low percentage of positive luetin reactions. The provocative test is the most generally applicable and most delicate of the tests available.

Lumbar puncture was made in only two of our cases. Complete negative findings were obtained in one case reacting negatively to both luetin and provocative. In the other case giving three single plus reactions in the provocative in conjunction with a papular luetin, the only abnormality in the spinal fluid was a cell count of 13.

Lumbar puncture is a most valuable procedure, it is not difficult nor dangerous, and should become more of a routine measure in early cases not responding readily to treatment. A final statement as to cure should properly include the data to be obtained from a spinal fluid examination. Expert examination of the eyes and cranial nerves may give valuable information.

This opportunity is taken to express my obligations to the medical officers of the Army, for the co-operation and interest they have shown in carrying on this work.

ADDENDUM.

Since presenting the above paper, reports have been received of the examinations of fifty-three additional cases. The following tables give the results of one hundred and four cases and include the fifty-one listed above:

SUMMARY OF FINDINGS IN ONE HUNDRED AND FOUR CURED AND UNCURED CASES.

Negative provocative and negative luetin.	54
Positive provocative and positive luetin.	7
Positive provocative and negative luetin.	16
Negative provocative and doubtful luetin.	2
Doubtful provocative and negative luetin	10
Positive provocative, no luetin performed.	1
Negative provocative, no luetin performed	8
No provocative performed, negative luetin	1
Frank relapse, provocative and luetin not performed	5
Total	104
Negative to both reactions.............	54
Negative to provocative alone..........	8
Total giving no positive reaction...	62
Total uncured cases	29
Total doubtful cases (including negative luetin alone)	13
Total	104

APPROXIMATE PERCENTAGES.

Cases one year without treatment, no manifestations and several Wassermann reactions, none of them positive.

Cured cases (including those negative to provocative alone)	59.6%
Uncured cases	27.9%
Doubtful cases	12.5%
Positive provocative in 26 uncured cases tested	100. %
Positive luetin in 26 uncured cases tested..	27. %

APPROXIMATE PERCENTAGES OF TIME ELAPSING BETWEEN INITIAL LESION AND DIAGNOSIS.

Cases 104	Seen within first week	Seen within first month	Seen within first two months	Adequate combined treatment first five months following diagnosis
Cured 62	13=21%	34=53%	44=70%	72% (Doubtful cases not included)
Uncured 29	4= 7%	8=31%	10=35%	10%

	Average period of observation	Average time, no treatment, no manifestations, no positive Wassermann reactions
Cured	3 9/12 years	1 year, 10 months
Uncured	4 5/12 years	2 years, 2 months

WASSERMANN REACTIONS IN PRELIMINARY EXAMINATIONS OF CURED AND UNCURED CASES.

(Ordinarily two in each case.)

62 cured cases gave:	29 not cured, gave:	13 doubtful gave:
110 negative	34 negative	20 negative
14 + —	15 + —	3 + —
2 +	10 +	3 +
	8 + +	

WASSERMANN REACTIONS IN PROVOCATIVE EXAMINATIONS.

(Ordinarily three in each case.)

62 cured cases gave:	29 not cured, gave:	13 doubtful gave:
214 negative	39 negative	24 negative
11 + —	19 + —	5 + —
2 +	22 +	6 +
	12 + +	

It should be stated that in addition to the one hundred and four cases, there were sixteen cases studied which were not included in the series for the reason that either the medical officer reporting the case was dissatisfied with the original diagnosis or the available history was not such as to establish the diagnosis beyond possible doubt.

The details of treatment were not gone into because it was not believed to be the function of this paper to formulate plans of treatment so much as to discuss the possibilities of cure with reference to general plans of treatment and the stage of the disease in which the treatment was instituted. As a matter of fact, I have rather roughly divided the treatment of syphilis into two classes: 1. Early combined intensive treatment; 2. All other kinds. The results are very much in favor of the first class. So many medical officers have used so many different treatments that it would be manifestly impossible within the scope of this paper to go into details. With regard to the form of mercurial injection, the following have been used: bichloride, biniodide, calomel, salicylate, succinamide, gray oil. Among the cases listed as having received satisfactory treatment, salvarsan was given from two to ten times. Inunctions have been used in a large number of cases with excellent results, but the method is not so well suited for army purposes. Neosalvarsan is not so efficaceous as salvarsan, but some cases as shown by the records have done well upon it when used in connection with mercury. I prefer salvarsan. I quite agree with those who think that the dark field offers some pitfalls for the beginner but with a little practice there should be no difficulty in diagnosing lesions upon the genitalia. Lesions of the mouth require more discrimination. I find frequent examination of treponemata obtained from the rabbit lesions, to be of value in retaining a mental picture of the organism.

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SYPHILITIC DISEASE OF THE ARTERIES.*

By ALEXANDER McPHEDRAN, M.D.,

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FEW more important advances have been made in modern medicine than the recognition of the morbid changes and the symptoms resulting from syphilitic infection of the walls of the blood vessels. Syphilis as a cause of aneurysm has been known for over 200 years, but syphilitic "arteritis" has been known to exist for little more than 50 years. Sir Clifford Allbutt was the first to describe the histological changes (in 1868), but it is only in recent years that the great importance of the disease has been fully realized, *i. e.*, since the *Treponema pallidum* was discovered and has come to be recognized as the infecting organism causing the disease. In common with other structures, the whole vascular system may be the seat of infection, but the arteries seem specially prone to invasion by the infecting organism.

Of the arteries, the cerebral are most liable to infection, and next to these the aorta and the coronaries. This may be due in part to the free blood supply to the walls of these vessels, and in part to the great strain by the sudden increase of blood pressure to which they are so often subjected and by which their resistance to infection may be lessened. It is worthy of note that these arteries are surrounded only by loose areolar tissue. It is remarkable that relatively few cases of syphilitic arteritis have had marked symptoms of syphilis or, in fact, any symptoms. Very many have had little treatment. Brain syphilis probably always begins as arterial disease in some form. Even gummata begin in the periarterial tissue in the piaarachnoid, although often situated apparently in the brain substance (Mott).

Arteritis may begin very soon after the syphilitic infection; it is not rare early in the secondary period. The terms primary, secondary and tertiary, as commonly used in describing the symptoms of syphilis, have long outlived their usefulness, and should be discarded, as they are too often used with reference to the time of the occurrence of the lesion rather than to the tissue invaded. In many cases neither primary nor secondary lesions have been observed, the first symptoms being those of disease of the deep structures. Arterial lesions may occur in the first year, in fact some believe the onset is most frequent then, the numbers lessening with each succeeding year.

Causes.—The reason for the occurrence of arteritis and periarteritis in the relatively few, although the number is large, while the majority of the infected escape, is difficult to determine. As in other diseases, a variety of causes are operative, such as inherited abiotrophy, *i. e.*, a lowered power of resistance, traumatism, insanitary environment, all varieties of excesses, of which alcoholism and venery doubtless have most influence, and, probably most important of all, inadequate treatment after the infection, often no treatment. Age has probably much influence, at least on the distribution of the infection. In children and young people syphilis may infect the peripheral vessels, causing general arteriosclerosis, is, in fact, probably the most frequent cause of it, while in those of mature and advanced age the large vessels are more often the seat of disease.

Morbid Anatomy.—Syphilitic arteritis is probably always due to infection of the arterial wall through the vasa vasorum by the treponema pallidum. The resulting lesions are multiform, varying chiefly with the structure of the wall of the arteries.

In the large arteries, of which the aorta may be taken as the type, the wall consists chiefly of elastic and white fibrous tissue. The lesions are usually quite characteristic, consisting in the early stage of gelatinous-looking plaques, caused by infiltration and thickening of the intima. These may be confined to narrow areas at the root of the aorta, but are to be found in any or all of the larger arteries. Later they become paler or of a bluish tint, and show fibrous-looking depressions of various sizes and shapes, often with linear and irregular scars. On section they are always found to be associated with mesarteritis and periarteritis of the corresponding areas, in which there is perivascular infiltration about the vasa vasorum, and fracture and splitting of the elastic tissue. In these infiltrated areas in the media, giant cells are found in the midst of small celled infiltration, a commencing gumma. Later the elastic tissue is quite destroyed and replaced by these gummatous formations. In many cases spirochæta pallida have been found in these areas. There is therefore, little room for doubt that the primary infection is about the terminals of the vasa vasorum in the media, spreading later to the intima and adventitia. Similar lesions have been found in the large vessels in cases of congenital syphilis. These changes in the vessel wall weaken its resisting power so that it may yield to the blood pressure and an aneurysm form. In fact, the great majority of aneurysms have this origin, all of them probably occurring before early middle life. The introduction of the Wassermann test affords good ground for this view. In recent years I have met with only one case without evidences of syphilis and that was in a man of 60. He had been a caretaker of a large building and doubtless subject often to heavy strain.

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* Read at the Annual Meeting of the Medical Society of the State of New York at Buffalo, April 28, 1915.

In the small vessels, whose walls are composed chiefly of muscular tissue, endarteritis and sclerosis are the chief morbid changes met with. Small gummata are also frequently present. As in the brain, the heart or the limbs, single vessels or groups of vessels only may be affected, or the disease may be widely distributed, involving the vascular system generally. The endarteritis may be nodular, deforming and reducing the lumen of the vessel, or wholly obstructing it at various points. This proliferated tissue shows little tendency to undergo caseation, but as it grows older it usually becomes denser and converted into cicatricial tissue. In this manner a more or less widespread arteriosclerosis may result. It is probable that many cases of general arteriosclerosis, especially in infants and children, and even in those of more mature years, are due to fibrosis following the degenerations caused by the devitalizing effect of syphilitic infection.

It is well to emphasize the fact that the term syphilitic endarteritis, so commonly used, is misleading, as the disease of the intima is always secondary to disease of the media, in which infection first takes place. The intima often shows the most marked changes, but the endarteritis even then is only a part of the arteritis in which all the coats of the artery are likewise involved.

Symptoms. Broadly viewed, the symptoms arise (1) from disturbance or arrest of blood supply to an organ or tissue, and (2) from pressure as of an aneurysm or gumma on surrounding structures. To these should probably be added spasm of the heart or aorta, arising from areas of weakness caused by local disease. Painful spasm of a similar character and due to arterial disease occurs in skeletal muscles in intermittent claudication. Symptoms from occlusion in endarteritis will depend on the suddenness of onset and the degree of collateral circulation. The Circle of Willis regulates the blood pressure in all the vessels within the cranium. The free communication maintains an equable supply of blood to all the branches even if one section is closed, but the closure must be gradual in order to permit of the adjustment of the blood pressure in the several vessels arising from the Circle. This is well illustrated by the occlusion of the basilar artery, for example. If sudden, instant coma results, followed by death within a few hours, but the artery is not rarely found completely closed at death, without there having been any symptoms pointing to its occurrence. The symptoms from occlusion of small cerebral vessels will depend on the part of the brain whose circulation is arrested. If a coronary or one of its branches is occluded there will be marked cardiac disturbance.

Aneurysms occurring before the age of forty, in the absence of a history of acute rheumatic infection or of years of severe muscular strain, are virtually always due to syphilitic arteritis. Even very small aneurysms that only pouch during life when under the pressure of the blood stream may cause serious damage. Such an aneurysm of the aorta may compress one of the coronary arteries and, if occurring suddenly, prove fatal. (Winternitz.) Arteritis of cerebral arteries not only leads to partial closure of the artery, but also to loss of elasticity, and, therefore, disturbance of equality of the pressure may occur under varying circumstances, as shown by slight dizziness, a dazed mental state, momentary loss of certain functions, as of power of speech, temporary local paresis of any part. Even with healthy arteries, many people with rather low blood pressure have similar disturbances on sudden movements, as in sitting up suddenly or stooping over quickly, showing how easily a momentary change in the force of circulation may occur in ordinary health. Syphilitic arteritis, affecting only areas of greater or less extent of the vascular system, does not raise the blood pressure. The heart is, therefore, not hypertrophied unless there exists a general arteriosclerosis from some other cause. A large heart, therefore, is rather a contraindication of syphilis. In congenital syphilis, however, arteriosclerosis may result from the syphilitic infection; in such the heart may become hypertrophied.

GASTRO - INTESTINAL MANIFESTATIONS IN SYPHILIS.*

By HENRY C. BUSWELL, M.D.,

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IN the short time allotted me to discuss the manifestations of gastro-intestinal syphilis, I have thought best to adhere strictly to the title and not to mention lesions above the stomach.

Stomach.

Pathological anatomical facts derived from autopsies show that syphilis of the gastro-intestinal tract occurs most frequently in middle life, and in the early period of the infection and particularly in alcoholics.

Chiari, in 243 autopsies of syphilitic subjects, found two cases of syphilis of the stomach.

Stolper, one case in 86 autopsies.

Volpi states that syphilitic ulceration of the stomach was found in 20 per cent of cases of gastric ulcer. Ewald gives 10 per cent.

Pathological Anatomy.

All forms of gastro-intestinal syphilis may be classed in the following groups:

(1) Catarrhal syphilis—due to congestion of vascular organs.

(2) Hemorrhages and hemorrhagic erosions—due either to congestion or as manifestation of a general hemorrhagic diathesis.

(3) Ulcerations over an area of syphilitic endarteritis.

(4) Ulcers consecutive to necrosis of gummata.

(5) Gummatous infiltration.

(6) Cicatrices—due to fibrous transformation of gummata—*e. g.*, stricture of pylorus.

(7) Hypertrophic thickening, either general or localized, of the stomach wall. A thickness of two centimeters may occur.

Size of ulcers according to Chiari—3 to 10 millimeters.

Dr. Lafleur of Montreal reports a case as shown by operation to have had an ulcer four inches in extent. Flexner a case with an ulcer 5 centimeters square. Cases of syphilitic ulceration of the stomach are reported by Weichselbaum—Birch—Hirschfeld, Founier and others.

In some of these cases operation, or post mortem and histological examination proved the syphilitic origin. In others the diagnosis was alleged as a result of therapy.

Gummata vary in size from minute to palpable growths.

Symptomatology of Gastric Syphilis.

Let us remember first that there are very few cases of proven gastric syphilis on record.

The mere fact that the patient has a known syphilis and suffers from gastric distress or even hematemesis does not prove that he has an ulcer. Nor does the fact that his stomach condition improves or is relieved after antiluetic treatment establish that he had an ulcer or gumma.

One excellent authority states that there is no cachexia in syphilitic disease of the stomach. Another, as great an authority, states the leading symptom is cachexia.

One states that there is diminished stomach secretion. Another, states there is increased secretion.

One states the pain is worse at night. Another, denies the statement. One states that hemorrhage is frequent and profuse. Another, that hemorrhage is less frequent.

Are we not warranted in concluding that as yet there are no pathognomonic symptoms of syphilitic disease of the stomach?

That in a known syphilitic with stomach manifestations we should treat the patient energetically and persistently to control or cure his syphilis, always bearing in mind anaphylaxis.

In the practice of internal medicine it has been my experience that patients suffering from tertiary syphilis, especially of the nervous system, are very apt to have marked functional gastric disturbances, usually in the nature of an abnormal secretion, and in my experience more frequently hyperchlorhydria. This has occurred so frequently that I have been led to make Wassermann tests when no other apparent reasons for such tests could be discovered.

I wish briefly to refer to two cases of gastric crises—coming under observation within the last year.

A young man of thirty had his gall bladder drained but nothing abnormal was found.

His attacks of pain and vomiting continuing a gastro-enterostomy was done for supposed ulcer.

He then made a business trip to Baltimore and was in a Hospital in that city for several days and a third operation advised which he declined.

Upon his return to Buffalo he had other attacks in which a vicious cycle could be demonstrated.

Loss of reflexes and disturbed cutaneous sensation led to a Wassermann, which was positive.

Under energetic anti-luetic treatment he has had no gastric crisis in some months.

A second case, male, 38—had been advised to have a gastro-enterostomy for gastric ulcer.

Palpation of abdomen, negative. Gastric analysis, hyperchlorhydria—but no further evidence of ulcer.

Further examination disclosed tabes.

Under active anti-syphilitic treatment the gastric crises have diminished in frequency and severity.

That hematemesis may occur during a gastric crisis without ulceration of the stomach is, in my opinion definitely proven.

Intestines.

The morbid anatomy is similar to that described as occurring in the stomach.

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* Read at the Annual Meeting of the Medical Society of the State of New York at Buffalo, April 28, 1915.

"Symptoms may be due either primarily to the syphilitic toxin or secondarily to the anatomical changes of syphilis."

The symptoms necessarily vary according to the location of the disease. Do not forget fever more or less continuous.

The lower part of jejunum is said to be not infrequently affected. Syphilitic affections occur not infrequently in the colon, but the rectum is most commonly attacked and the syphilitic lesion of this locality is to be differentiated from carcinoma.

Ulceration is the most common lesion and results in radiating cicatrices and stenosis.

I recall but one case in my own experience occurring over twelve years ago.

Female, 34, married—no children—one premature birth—one miscarriage. Diagnosis of stenosis of ileum. Operation disclosed a well established stenosis at lower third of ileum. No ulceration, but an annular stenosis. No enlarged glands, no other pathological lesion, and the cause could not be determined.

Four years ago she again came under my care with incipient tabes, and a positive Wassermann was obtained.

PANCREAS.

Of 188 cases described by Oser, syphilitic changes were found in three.

Pancreatic lesions are more frequent in inherited than in acquired syphilis.

The organ showing changes in 20 per cent of new born luetic children.

LIVER.

In 3,300 autopsies at Johns Hopkins were 46 cases of syphilis of the liver.

Rolliston (Diseases of Liver, 1905) gives 64 cases in 11,629 autopsies.

Flexner 88 cases in 5,088 autopsies.

MORBID ANATOMY.

(1) Acute necrotic hepatitis.

(2) Gummata (from size of millet seed to palpable tumor).

(3) Gummatous Cicatrices.

(4) Peri-hepatitis.

(5) Amyloid changes.

(6) Interstitial hepatitis. Congenital and acquired forms.

(7) Cirrhosis.

(8) Rarer complications:—Thrombosis of venous system. Rupture of gummata into peritoneal cavity. Infarcts.

CLINICAL MANIFESTATIONS.

Syphilitic jaundice occurs in secondary and tertiary stages. Lasts 3-4 weeks and may become chronic.

Cases of gummata of palpable size must be differentiated from cancer, gall-stones, hydatid.

Ascites occurs.

Jaundice is frequent.

The spleen is usually large.

Protracted fever is of frequent occurrence.

Abdominal pain, indigestion are chief subjective symptoms.

Acute yellow atrophy may be caused by syphilis.

Amyloid changes and symptoms of this condition should not be forgotten.

I wish briefly to cite two cases.

Male—45—Digestive disturbances; loss of weight; light degree of jaundice. Upon palpation a mass could be made out, springing from the liver—a typical Riegels lobe.

Exploratory incision. Diagnosis by the surgeon and myself of cancer of the liver, with fatal prognosis, but the patient did not die, and under anti-luetic treatment is alive and well after ten years.

A second case: Male—44—acquired syphilis six years before date of observation.

After exposure the patient developed fever—pain—slight jaundice and the liver became markedly and uniformly enlarged—spleen moderately enlarged.

Under specific treatment, the patient recovered and the liver became normal in size.

Report of a case illustrating the protracted fever of visceral syphilis:

First saw Mrs. "X." July 5, 1907. Age 36. In 1893 shortly after her marriage, she was supposed to have contracted malaria and has practically been an invalid since that date. Extreme weakness; irritable stomach; with more or less continuous temperature, at times reaching 103-104 Fahrenheit.

Diagnosis of her condition have been numerous:—Tuberculosis; ovarian tumor; gall-stones; nephritis.

Status Præsens, July 5, 1907.

Weight, 96 pounds; pulse, 100; temperature, 102 at 5 P. M.

Heart:—Apex beat in 6th intercostal space, one inch externally to left of mamillary line. Deep cardiac dullness at lower border of third rib in para-sternal line. The right border of deep cardiac dullness was to the right of the left sternal margin. Systolic murmur at apex.

Lungs:—Normal.

Liver:—Could be readily palpated 1½ inches below the border of the ribs. The edge was rounded and at one point felt uneven.

Spleen:—Upon the left side beneath the border of the ribs a mass could be palpated extending three inches below the border of the ribs, of firm consistency; but regular in outline. I was first in doubt as to whether I was palpating spleen or kidney, but later decided the mass to be spleen.

Nervous System:—Negative.

Urine:—Normal.

Leucocyte count, 10,937.

She was placed on anti-luetic treatment, and after ten days had no more fever. December 1, 1907, she weighed 108 pounds.

March 6, 1915, she weighed 126 pounds and was in excellent health.

NASO-PHARYNGEAL FIBROMA.*

By WALTER S. DALY, M.D.,
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A. G., a young man of eighteen years, was sent to me for a large growth filling the naso-pharyngeal space and sending out to the anterior nares two prolongations, which, protruding through the nostrils, rested upon the upper lip.

The boy was a strapping young French Canadian, with a negative antecedent history, excepting such phases of history as related to the development of the growth in question. From about his sixteenth year he began to suffer from bilateral nasal stenosis, with all the train of symptoms consequent thereon: abolished nasal respiration, impairment of voice ("dead voice") characteristic of growths in this locality. About this time the family noticed a gradually increasing change in facial expression from the normal to the typical "frog face" met with in naso-pharyngeal tumors. The patient had a vacant expression and looked stupid. At this time, the patient was supposed by the family to have "catarrh," due, no doubt, to the excessive amount of thick, tenacious, mucus which the patient could hawk up only with the greatest difficulty owing to the tumor impeding the action of the faucial muscles. The secretions from the nasal chambers proper were of a sero-mucous character and oftentimes tinged with blood.

From his sixteenth to seventeenth year six attacks of hemorrhage occurred, which were exceedingly violent in character—very persistent and long continued, lasting from six to fifteen hours. The attacks of hemorrhage came on without any apparent cause and generally during sleeping hours. All the above symptoms gradually increased in severity up to the 2nd of March, 1914, when he appeared at my office for examination.

As seen by posterior rhinoscopy, the naso-pharyngeal space, from pillar to pillar, was filled by a reddish mass, which appeared to be attached, by a broad base, to the base of the sphenoid in its central portion, the posterior edge of the vomer cleaving the mass into two distinct prolongations, which forced their way to the anterior nares. The tumor, irregularly rounded, was of a pink or rose color, firm, hard and resisting to the touch, and quite immovable.

While trying to explore the site of attachment with the index finger, a violent hemorrhage supervened exsanguinating the patient, and rendering him unconscious; the hemorrhage ceasing only when the heart became too feeble to force the blood to the part. Further efforts at manipulation were discontinued, and, patient, semi-conscious, was removed to the hospital where he was allowed to recuperate for six weeks before any efforts at removal were begun.

During this period of rest I had occasion to watch the symptoms both objective and subjective. Of course, there was present marked anæmia with its coterie of symptoms; frog face and its attendant appearance of stupidity; the tumors, projecting from each nostril were bulbous, and pinkish in color, while the tumor filling the post-nasal space approached more the color of the normal mucous membrane. Streaking over the prolongations as well as over the base of the tumor, numerous blood vessels could be closely followed. The secretions from nose and pharynx were very abundant, but differing in consistency; voice dead and without resonance; respiration sonorous when sleeping; no difficulty in deglutition; no ear complications; no exophthalmos, no visual symptoms; no invasion of surrounding tissues; no cranial symptoms; no pain; temperature normal; pulse rapid and feeble. Pulse gradually improved in rythm and volume as anæmia disappeared, April 17, 1914.

The patient having sufficiently recovered, efforts at removal by galvano-cautery and electrolysis were tried without any appreciable lessening of the growth's size, but always accompanied by startling hemorrhages lasting for hours and which resisted all treatment.

We had now arrived at the conclusion that we had to deal with a large typical fibroma of great vascularity and probably complicated by an adhesion in the vicinity of the lower border of the oval openings; and furthermore that the various methods of treatment such as caustic injections, evulsion, ecrazeur, cold wire snare, galvano-cautery loop, electrolysis, etc., were entirely inadequate for the removal of a growth, similarly located, and of such vascularity as to preclude the possibility of its removal, by such methods, without threatening the life of the patient.

Its removal, by radical operation, was decided upon, and, on November 3rd, a partial and temporary resection of the nasal bone and nasal process of the superior maxilla was performed. A modified Boeckel's operation was done. An incision, down to the bone, was made along the lower border of left orbit to the root of the nose, where another incision starts and is carried along the side of the nose to the groove between the nostril and the cheek, a tongue-shaped flap of skin was thus defined, the base of which was outwards. With a small rugine the periosteum was separated from lower part of nasal bone and from the whole width of the nasal process of the maxilla, care, of course, being taken to avoid the lacrymal sac on the one hand and the infra-orbital nerve on the other. A chisel was now entered—first to the inner side of the infra-orbital canal, and the maxilla divided nearly vertically.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 27, 1915

This chisel cut reached the nasal cavity. The bone was now divided with the chisel just in front of the lacrymal sac, and again through the upper part of the nasal process and the lower part of the nasal bone. The portion of bone defined by the chisel was hinged back on the cheek. A perfect view of the tumor was now obtained. Its attachment to the base of the sphenoid, and its cleavage, by the vomer, were readily recognized.

As the patient was in a very fair condition, and as there had been very little loss of blood (contrary to our expectations), the broad periosteal base was rapidly attacked with a sharp periosteum elevator, quickly separated, and the tumor removed.

Strips of gauze were quickly packed into the cavity, which was securely tamponned. The hemorrhage which followed was very moderate and ceased entirely in thirty minutes.

The hinged portion of bone and overlying skin flap were not replaced until the third day, when the packing was removed without starting up the hemorrhage. The bone was placed back without sutures, and the skin flap stretched over and sutured in place.

The patient experienced little trouble with the anesthetic (nitrous oxide and ether), and his condition was fairly good. His recovery was prompt and uneventful, and to this date no recurrence of the growth has taken place.

"Pathological Findings."

Macroscopically the growth was 9 c.m. in length from attachment base to tip end of left prolongation, and 8½ c.m. in length for right prolongation. From side to side the base measured 2 c.m. and antero-posteriorly 1½ c.m.

The specimen was pinkish in color, very firm, irregular in outline, and resembled in shape a fœtus between third and fourth month. On the under side, where the prolongations joined the base, there was an abrasion caused by an adhesion of the growth along the lower border of the choanæ. No other evidence of adhesions or ulcerations were found. White fibrous tissue, closely packed together, and generally running in parallel bundles, formed the greater part of the mass, but frequently interlacing in every direction.

The specimen was poor in cells. A few cells somewhat stellate and spindle-shaped imbedded in a delicate meshwork of fibers, were scattered here and there throughout the tissues. A connective tissue capsule, with a covering of more or less flattened epithelial cells, enveloped the growth; and underneath this capsule large blood-vessels with extremely attenuated walls ramified in all directions, and the facility with which they are ruptured is, undoubtedly, the cause of the frequent hemorrhages, which have become pathognomonic of typical naso-pharyngeal fibroma. Other blood spaces, some with coats and some with only cellular linings, were found here and there through the growth. A diagnosis of true typical fibroma of the naso-pharynx was made, not so much from the pathological findings, for in truth, I have little confidence in them, as from the symptom-complex so typically demonstrated by the tumor under discussion.

Its pinkish color, its very hardness, its contour, its broad base, its immovability, its steady growth, its tendency to invade neighboring cavities without producing metastases in other parts, its vascularity, its frequently recurring hemorrhage, all make the diagnosis of true, typical fibroma of the naso-pharynx, positive and certain.

It would seem after reading the literature of the subject, that there is a great deal of confusion as to what growths should be given a place under the heading of "Fibroma." The so-called "soft" fibroma, in contradistinction to the "hard" or true fibroma, should not, in my estimation, be classed as a true fibroma. For, in its pathology, it does not differ materially from a myxomatous growth of the nasal passages, inasmuch as the greater part of the tumor is made up of soft myxomatous material, which makes it appear like a polypus, act like a polypus, and require the same mild procedures for its removal as a polypus.

It never threatens health or life, either from hemorrhage or from invasion of neighboring vital parts, and as Bosworth has well said, "A fibro-mucous tumor never gives rise to hemorrhage, facial deformity, displacement or erosion of bone, or any of the grave complications which attend the development of fibroma in the naso-pharynx." (P. 592.)

The so-called "soft" tumor possesses a clinical history which is completely at variance with that of true fibroma. As in nasal polypi, about two-thirds of the cases occur in females, and generally in conjunction with polypi. They may be met with at any time of life. They do not seem to be arrested in their development about the twenty-fifth year and, then, to graudally disappear, as is the rule with fibromata.

Bensch, quoted by Zarniko and Holmes, formulates the following theory to explain why, during childhood, these growths are of equal occurrence, and why, during the period of puberty, the fibromata preponderate in the male; and why, after puberty, fibromata have a tendency to disappear.

"The congruent or corresponding development of the skull in both sexes during childhood results in the equal frequency of the naso-pharyngeal polpi in either, during the early years.

"The divergence of the development of the skull bones of the face in the male from that of the female at the time of puberty explains the difference in frequency of this affection in both sexes.

"During the developmental period for unknown reasons, the periosteum may become unable to form bone over a circumscribed area, and the physiological increase of nutrition incident to the development of the body at this period, causes an equal amount of nourishment to be carried to this circumscribed area, which, not being used up in the formation of bone, leads to hypertrophy of the periosteum at this point, and consequent development of the fibroma.

Developmental arrest of true fibromata is coincident with arrest of development of the skull. It is not so with the so-called "soft" fibroma. It would seem, therefore, that we are dealing with a tumor histologically, anatomically and clinically different from the so-called "soft" fibroma; that the true fibroma should have a class distinctively its own; while the so-called "soft" fibroma should be thrown back into the column of mucous polypi.

Let me say in conclusion, that it is inadvisable, either in the case of fibroma vascularis or sarcoma, to delay too long before resorting to the radical operation. If your patient has been exsanguinated several times, either from the milder operative procedures or otherwise, and if such hemorrhages continue, the approach of anæmic degeneration of the myocardium is to be feared; it is better to forestall such dreaded results by a temporary and partial resection done early and before the vital resisting powers of the patient have been exhausted.

Discussion.

DR. HUBERT ARROWSMITH, Brooklyn:—For the relief of these conditions I believe that surgery is the only adequate treatment. Our generally rather unsatisfactory operative results have been due to the haphazard methods we have employed. In no other region has there been so much blind and unworkmanlike groping in the dark as in the attempts to remove naso-pharyngeal tumors by the natural passages. I have myself operated on a considerable number of these growths by the hit or miss methods of evulsion usually in vogue, and I must confess, with very indifferent success. In the last case that has been directly under my care, I operated in this slipshod manner in November, 1913. Within two months the tumor had returned and was considerably larger than when the first attempt at removal was made. I then operated according to the method devised by Moure and described by Sir St. Clair Thomson in his book, with the result that when I last heard from the patient nine months afterward, there were no signs of return.

For absolutely comfortable and accurate operating three factors are necessary or desirable —First, Gwathmey's colonic oil-ether anæsthesia, which I employ as a routine in all the more extensive and protracted operations about the air passages of the head. Second, preliminary tracheotomy. Third, ligation of the external carotid.

Moure's lateral rhinotomy: An incision commencing at the glabella, along the base of the nose, through the ala at its attachment, another incision starting at the glabella and following the lower border of the orbit half-way out. The soft tissues are reflected en masse and the nasal flap rolled over to the opposite side. The nasal bone and nasal process of the maxilla are resected and thus a very satisfactory approach to the naso-pharynx is obtained; if necessary with removal of the middle turbinate. With scissors and punch forceps the growth can be pretty accurately enucleated. Careful coaption of the flaps will ensure almost no scar. This method will, I believe, furnish sufficient access in practically every case.

SOME METHODS, USEFUL IN DIRECT LARYNGOSCOPY.*

By C. JOHNSTONE IMPERATORI, M.D.,
NEW YORK CITY.

WITH the newer instruments and improvements in technic, the direct method of examination and operation within the larynx has become a much less formidable procedure, than it was some few years ago.

The chances of failure being reduced to a minimum and the methods of illumination being nearly 100 per cent efficient, a detailed examination of the larynx is successful in practically all cases.

There are few cases that can not be examined under local anæsthesia, while in children no anæsthesia is necessary. Manipulations with instruments is mainly a matter of personal equation and adaptation.

To attain a result—there may be many ways of approach—all being excellent and as we understand them to be of definite value, but there are certain mechanical contrivances in use that have but one way of proper application.

As a rule the inventor of an instrument rarely dilates on the disadvantages and difficulties of application of his particular instrument.

Of course, the direct method of laryngoscopy cannot be compared with the indirect method for simplicity in application, but the greater advantages afforded by direct vision, proper prospective and the recognition of the finer shades of inflammatory conditions of the mucous membrane, with the possibility of instrumentation and also the examination of the larynx of children, makes this method of greater value. There is one condition, that has been pointed out by Harmon Smith, in which direct laryngoscopy may fail: that is in vocal nodules of the cords. It is possible by poor manipulation to stretch or overstretch the cords, so that, the growth cannot be seen or recognized. This is exceptional.

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*Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 29, 1915.

GENERAL CONSIDERATIONS.

1. In children and especially in infants, if the examination is prolonged, there is marked danger of inducing an edema of the larynx, particularly, should the operator have had any difficulty in the procedure.

2. Gagging invariably means, that the operator is pressing the larynx forward, that is the beak of the instrument is in the entrance of the esophagus.

This may be corrected and overcome by withdrawing the instrument a short distance and elevating the handle, when the beak of the spatula will drop into the vestibule of the larynx.

3. The smaller the tube used—the easier for the patient—but of course the field is very much contracted and the general view and the relationship of the adjacent parts can not be seen at the same time. However, for examination the smaller tubes are to be preferred.

The larger tubes are better for operating, provided one is not in a position to use the suspension apparatus.

4. Spatulæ should be warmed before introduction, having been previously sterilized. Lubricants are unnecessary, excepting in esophagoscopy, when sterile vaseline may be used.

5. It is unnecessary to remind one, that there should be extra lights for the electrical equipment and batteries of proper strength; other means of lighting should be tried out before hand.

6. Instruments, biting and cutting type should be introduced closed. Instruments should also be warm.

Introduced closed they take up less space and the eye can follow the end of the instrument more easily.

If possible instruments should be introduced from the side and not in the line of direct vision.

This can be easily done with the Hill or the modified Hill spatula, on the Breunning handle.

Also, the same results may be obtained with the new Jackson Laryngoscope, the Mosher instrument, the Lynah speculum and best of all, when using the suspension apparatus.

7. The use of rolled gauze or tampons, as suggested by Yankauer, for mopping and cleaning the field, is of decided advantage. The roll is about one cm. long by one-half cm. in breadth: it is more absorbent than cotton, and there is less danger of leaving pieces behind. Also, the proper size of the swab is easily and quickly put on the applicator.

8. The focusing of the Breunning electroscope, should not be forgotten, as the illumination is increased very much with proper adjustment.

The Jackson type of instruments should be brought to the proper degree of illumination before introduction.

METHODS OF ANÆSTHESIA.

An exceedingly important consideration in direct work is the mental attitude of the patient, when one is examining the larynx, without the use of a general anæsthetic.

A stolid individual with proper cocainization can be easily examined. A nervous patient or one frightened by previous unsuccessful manipulations, either direct or indirect, can be made to approach the laryngoscopist with neither fear nor trepidation, provided a proper dose of morphia has been previously given.

The addition of atropine is useful—in that there is less tendency to excessive secretion.

Of course in children, neither atropine nor morphine are to be given, but chloral per rectum (10 grs. to a child 4 years and graduating the dose for younger children), one hour before the examination, and the child properly swathed and properly held will invariably meet with success.

GENERAL.

The use of a general anæsthetic in these cases of direct laryngoscopy seems hardly necessary. However, where one is indicated and that in an extremely nervous individual or one in whom the neck is short and with rigid muscles, the method of Gwathmey is to be recommended.

Chloroform guardedly given, even in children, is a safe anæsthesia and does not produce the excessive secretions that ether given per oram does. However, ether preceded by the injection, hypodermatically, of atropine usually acts satisfactorily and is the method of choice.

It is to be noted that the great majority of cases can be operated under local anæsthesia.

LOCAL.

When morphine or scopolamin has been given, there seems to be in the majority of cases less cocaine needed to get the proper anæsthesia of the laryngeal surfaces. In children cocaine is not used—the methods, indicated above being employed.

Alypin may be used and seems to be a safe substitute for cocaine—in children.

The Sajous or Cohen applicator is a very convenient instrument in cocainizing the larynx and adjacent tissues. The drop methods as practiced by White of New York is also useful but preference is given to application, with the cotton swab on the Cohen instrument. By gently rubbing the mucous membrane there is less cocaine used. Actually more of the drug is used for there is always considerable left on the swab.

The method of application is as follows: beginning at the tip of the tongue and swabbing the lingual surface toward the pharynx, the pillars of the pharynx, soft palate and tonsils are swabbed, then the epipharynx and posterior pharyngeal wall, then the valleculæ, laryngeal surface of the epiglottis, laryngo-pharynx, pyriform sinuses, arytenoids and finally the vestibule of the larynx.

If from three to five applications of a 20 per cent cocaine, are applied within twenty minutes, the last application being made to the epiglottis and the larynx (the other parts mentioned above being omitted in the latter cocainization), it will be found that a proper anæsthesia shall have been induced and will remain so for some time.

Assistance.

One trained to hold the head or to adjust the suspension gallows is very useful but not essential.

Position in Children.

In children the straight position on the table is to be recommended. An assistant or nurse steadying the head and the child swathed, will be found to aid in the success of the procedure.

The upright position may be used. The child being properly swathed and held by an assistant in the same position that we are accustomed to hold an unruly child. The assistant sits on a low chair or stool.

Position in Adults.

The sitting position of Breunning seems to be the best for all round class of cases.

The recumbent position with the head straight on the table as suggested by Johnson, will be found difficult unless the Johnson instrument is used.

The recumbent position with the head in the Boyce position is always successful, but it is necessary to have a trained assistant to properly hold the head.

If the sitting position is used the Breunning chair is useful.

Instruments.

This is always a point of great discussion among those practicing direct laryngoscopy; suffice to say, that both types of instruments should be in the armamentarium.

Suggestions in Instrumentation.

Whatever instrument we have elected to use, having been previously warmed and properly adjusted and the patient being properly prepared and ready for the examination, the mouth is opened and the beak of the instrument gently but firmly slid down the dorsum of the tongue sufficiently far to recognize the epiglottis.

It is important, that the epiglottis be recognized. Passing over the tip of the epiglottis, with the beak of the instrument and firmly holding the instrument in a forward and downward direction, the instrument is then sunk into the entrance of the larynx.

Using the upper teeth as a fulcrum to overcome the rigidity of the muscles of the base of the tongue is poor technic. Those cases in whom we do not seem able to control the tongue, because of its curling and twisting, entering through the corner of the mouth, the patient having turned the head to one side, will be found to overcome this difficulty. When the epiglottis is seen, the beak of the instrument should be made to catch it from the side, elevating the handle of the instrument a trifle at the same time and then the patient's head is turned back to the median line.

If the sitting position is used the patient's head should be in the natural position, with a slight bending forward of the body.

If the head is not pushed upward too much nor the chin tilted too much, the manipulation is not so difficult, neither for the patient nor the operator.

In the recumbent position the use of the Hill or the modified Hill spatula on the Breunning handle, the Mosher or the Lynah spatulæ, gives one the next best method to the Killian suspension.

*Suspension Laryngoscopy.

The Killian Suspension Laryngoscope is the most useful instrument, as yet devised for the examination and operative procedure on the larynx.

Some of the minor disadvantages of the instrument are the formidable appearance of the apparatus, the discomforts of congestion of the head and face of the patient, with subsequent headache; and, the frequent and repeated practice necessary to properly adjust the apparatus to different patients.

Occasionally the anterior commissure is seen with difficulty, but this is rather rare—slight pressure on the cricoid, usually bringing it into view.

There are some cases in whom the neck is very short and thick and when under cocaine anæsthesia the rigidity of the muscles of the tongue is difficult to overcome: in these cases it is advisable to use a general anæsthetic, preferably the ether oil colon anæsthesia.

In placing the suspension spatula in place, if the patient will open the mouth moderately wide, the spatula can be slid on the dorsum of the tongue easily, the tooth plate easily adjusted, as in the old models or caught on the teeth in the last model; the mouth gag, now being gradually opened, sufficiently, to see the pharynx, epiglottis, etc.

When the spatula with the epiglottis holder is used, the retractor is then passed in so that it will lift the epiglottis from below. Now, we

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* Since the reading of this article, Lynch, of New Orleans, has devised an improved suspension hook. The hook differs from the Killian in the mouth-gag and the spatula. It is much easier of application and gives a better exposure of the anterior commissure.

can very easily see the posterior commissure and the arytenoids, slight pressure on the cricoid will either permanently place the whole larynx in view or it will be necessary in some cases to keep up the pressure on the cricoid.

Should the anterior commissure not be well exposed, then the winged screw on the hook should be used, turning it so that the beak of the instrument is raised.

The manipulation of the gallows is very important and should be so adjusted, that the head and neck of the patient is just off the edge of the table, the shoulders being about in line with the upright arm.

The gallows should be attached to the right side about four inches from the head of the table.

Too much lifting causes arching of the tongue and is painful to the patient. If the adjustment of the gallows is too far (toward the feet of the patient) in the horizontal plane, loss of view of the anterior commissure results.

Gagging means, that the beak of the spatula is in the laryngo pharynx and is pressing the larynx forward.

Coughing usually means improper cocainization. Proper adjustment of the tooth-plate and mouth gag are of prime importance. The beak of the spatula, whatever type is being used must be on the cushion of the epiglottis, in order to have the proper exposure of the larynx.

As regards the comfort of the patient, in those cases done under local anæsthesia, the wider the tooth plate is opened the more the patient will complain, for this puts the pillars of the pharynx on the stretch plus a pressure on the upper incisor teeth.

If the winged screw is used on the hook and the mouth gag not opened so widely, the same results can be obtained and while we do not have such a wide open field, that is pharynx and mouth, the view of the larynx is the same and the comfort of the patient is conserved.

Lynch of New Orleans has devised a table that is very useful, and is not costly.

During suspension, the best illumination is obtained by the use of the Arrowsmith light attachment. This attachment, which takes up very little room should be soldered to the tooth plate of the instrument. Head lights are a bother and cannot compare with this light in usefulness.

The light should be turned on before the spatula is placed within the mouth of the patient, thus giving a good illumination within the mouth from the start of the manipulation.

Regarding the different types of hooks and spatula, the writer has found, that the first type of hook and spatula gives the best exposure, for work within the larynx.

Some cases of tuberculosis, syphilis or cancer of the larynx are very difficult to swing, because of the infiltration of the tissues and the subsequent loss of elasticity of the parts. Of course in these cases, we fall back on the Breunning or the Jackson instruments.

With patience, practice and proper juxtaposition of the patient and the apparatus, practically all cases can be swung so that we get a complete view of the larynx.

Special Methods—Direct Intubation.

By direct laryngoscopy we can study the larynx and adjacent parts previous to the introduction of the O'Dwyer tube. Less trauma of the larynx and adjacent tissue is likely under direct vision, than by the original method of O'Dwyer. For intubation an instrument such as the Lynah or the Mosher is suitable, while for extubation, any laryngoscope may be used. The recumbent position of Johnson is best suited for direct intubation, the operator standing at the head of the table, facing the feet of the patient.

Removal of the Epiglottis.

In tubercular or cancerous involvement of the epiglottis and larynx, the suspension method is to be recommended when it is deemed necessary to do an epiglottectomy.

The use of the spatula, without the use of the epiglottis holder is to be used and after proper adjustment, the epiglottis is caught with a volsellum forceps and pulled upward and outward. The glosso-epiglottic folds are cut with a long pair of scissors and then a snare passed down to the root and snared off.

There is usually very little hemorrhage or shock. When preceded by morphine and atropine as suggested elsewhere and by proper cocainization, the patient will complain very little. In retro-pharyngeal abscess and in abscess of the larynx the suspension method of approach is ideal.

While tonsils have been removed by this method, it would seem that we have better means at our disposal.

It would seem, that growths of the epi-pharynx could be easily removed by this method, especially in those growths that are best treated by injection.

Method of Teaching Direct Laryngoscopy.

This is best done on dogs.

As it is essential not to traumatise the larynx in the human, with a little care these operations on our canine friends can be carried out as carefully.

The fox terrier or similar type is suitable. Usually two injections of two grains each of morphine are necessary. One injection to be given one hour before the instrumentation and the other at the start of the procedure.

By this method the animal is not injured nor hurt and may be used repeatedly.

The larynx of a fox terrier is practically the size of an adult human. Taking into consideration the pointed muzzle, the distance from the incisor teeth is about the same. The arytenoids are more pointed and stand out more prominently than in the human, but for all practical purposes of study both are nearly alike.

If the animal is placed in a quiet dark place after the operation and allowed to sleep and fed lightly for the next few days, it will recover completely.

In order to hold the animal during the instrumentation, it should be placed in a frame, made in the form of a trough, that is open at both ends. The head is allowed to project from one end.

Conclusions.

In order to perfect one's technic in direct laryngoscopy, whether with the Breunning, Jackson or Killian instruments, practice and repeated practice is necessary.

The marked difference in the laryngeal picture, between the indirect and the direct method, is such that one unaccustomed to this newer method can hardly appreciate the true condition, either normal or otherwise, that is present.

While the mechanical manipulations of the various instruments and apparatus require practice, the eye must be repeatedly viewing the internal structures of the larynx in order to appreciate the findings, whether they are normal or pathological.

The contention of the older laryngologists, that the indirect method is becoming a lost art, is hardly true, for this method will always be practiced.

One cannot fail to see that the newer method presents greater possibilities, both from a diagnostic and operative standpoint, and it is with this idea that the direct method be more generally used by laryngologists, that the writer presents this paper for your consideration.

Discussion.

Dr. Henry Hall Forbes, New York City: I feel highly honored in having been asked by Dr. Harris to open the discussion of this very interesting paper. This should be instructive as giving to us the points which Dr. Imperatori finds useful to him where experience is large.

I should like to speak from the standpoint of one teaching both direct laryngoscopy and the suspension. But of the Killian suspension only do these remarks apply.

When we note, as in the large sketch, the perfect and complete picture of the pharynx in detail with orifice of the esophagus and the posterior surface of the larynx, you can well imagine the enthusiasm so often expressed by those seeing for the first time the Killian suspension apparatus.

We also remember that it was through efforts of Killian to get just such a view here given for an anatomical drawing of the larynx that he developed the instrument for use in the living. Now, why is this method coming into use? We teach the indirect method of examination and operative technique, which is very difficult with the instrument of Killian, Jackson, Mosher, and yet we are adding another to our list, but this last is much easier to learn.

The greatest usefulness seems to be in children. Here the parts are elastic. Under rectal or regular anæsthesia we are able to work with both hands free, with perfect illumination of the field, using either the head mirror or attachment here shown. The operator is in an unstrained position, and a continuous view of the operative field is to be had. There is no danger from inhalation of blood, mucus or tissue. And what is even more important to those teaching, is the perfect method of demonstration to others. To me this seems quite sufficient to make us anxious to perfect our technique in the use of Killian suspension.

We find it useful in children in papilloma larynx, foreign bodies in the larynx, and also examination of the mouth of the esophagus.

Killian, in his article read in London, ends with these words: "Taking it all in all, we have in suspension laryngoscopy a method which renders excellent service under definite conditions, and enlarges still further the limits of our diagnostic and therapeutic knowledge."

One of my first cases was one of papilloma of the larynx in a child. This case was one in the service of your chairman, Dr. Harris, and was treated by me in his absence. I wish to mention it as probably being the first case in which suspension was used for an application of radium. Under rectal anæsthesia it was possible to use radium direct to the larynx for thirty-five minutes with comfort to patient and operator. The same afternoon I made application to larynx of an adult for twenty-one minutes, using suspension apparatus under cocaine.

In passing around the drawings, which are all original, I beg to draw your attention to the large sketch, in which you see the instrument in perfect position, giving full view of the posterior wall of the pharynx, opening of the esophagus, posterior wall of the larynx and interior of the larynx. No. 1 of the smaller drawings shows the epiglottis free. Here we have an opportunity for the operative work. The use of the epiglottis holder now applied would give you the picture as seen in large sketch.

Drawing No. 2 is from a case under my care in the service of Dr. Clarence C. Rice, and shows a gumma in the interaynoid space and ulceration of both cords. Most marked on the right.

Drawing No. 3 is a case under treatment, and shows a gumma in the left sinus and also interaynoid growth.

Drawing No. 4. This sketch was made on Monday previous to operation. The case is one of papilloma of the larynx, and was referred to me by Dr. Loughran for operation.

Dr. Mosher's apparatus, he tells me, can be used in 90 per cent of cases, and is not so complicated as Killian.

In regard to Dr. Imperatori's paper, I prefer general anæsthesia in children. Experience in brongoscopy is an aid to your orientation in work in larynx.

Suggest cocaine infiltration in work on epiglottis.

Practice and repeated practice makes perfect in this, as in bronchoscopy.

THE DEAF CHILD FROM THE STANDPOINT OF THE EDUCATOR.*

By JOHN D. WRIGHT,
NEW YORK CITY.

I WISH to express the appreciation which I always feel when physicians give up their time to the discussion of matters affecting the welfare of their patients yet not directly connected with their own activities.

It is my privilege to call your attention to the fact that you are in the unusual and fortunate position of being able to render certain of your patients a great service, even when your own medical and surgical skill cannot ameliorate their condition. Deaf children are brought to you and deaf adults come to you for whom there is today no known means of restoring hearing or of warding off approaching deafness. Were it not for the educational hope that the physician can hold out to those cases he would be compelled to send them from his office in despair.

You have asked me to speak to you concerning the deaf child from the educational point of view and I have accepted with pleasure because you are in the position to render deaf children an immense service if you have at your command the facts concerning the educational possibilities open to them. You are, also, in a position to give the necessary information and suggestions to the parents of these children at the period when they can be advantageously acted upon; information and suggestions that the parents would not be likely to obtain from other sources until the best time for utilizing them had gone forever.

Hundreds, yes, thousands, of deaf children have in the past failed to enjoy the full advantages possible for them because their parents did not know those possibilities. Each one of those children came under the observation and guidance of some physician at a time when urgent advice to the parents would have secured for the child that which he most needed. The physician did not know, so he could not be held to blame. It is my hope that within a comparatively few years there will be no physician who does not either know what the parents should do, or at least to whom he can refer them for that information. Then physicians must shoulder the blame if parents of a deaf child do not know at a sufficiently early period what they can and ought to do educationally for their children.

The years of the deaf child's life from birth to the age of five can scarcely be saved from waste educationally, except through you, of the medical profession. No one else possessing the necessary information learns of the presence of deafness as early as does the physician, and the responsibility of securing for the child the educational treatment that he requires before reaching school age must rest almost exclusively upon the physician.

The thought that much can be done educationally for the little deaf child before he is old enough to be admitted to a special school for the deaf is new to most physicians as well as to most parents. For this reason these early and impressionable years have usually been lost to the child. Even when the physician knew that there were things that the mother and other members of the family could do for the little unfortunate, he could only give this information in the most general terms, and it was rarely that the practical daily application of his advice could be worked out by the mother.

If we compare for a moment the situation of the deaf child of five and the hearing child of five, we shall see what great tasks the little hearing child has already accomplished, and how immensely desirable it is that the deaf child should be helped to make at least a beginning on these same tasks at the time most favorable, psychologically, for their accomplishment.

At five years of age the hearing child has unconsciously learned the extraordinarily complex act of speech, and has with equal unconsciousness of special effort, acquired the greater part of the working vocabulary that he will use throughout his life. To have learned to speak and to have acquired a language are two very notable intellectual feats. Yet these two great fundamental accomplishments have been acquired without ever crossing the threshold of a school, and without any special instruction. But what is the result of congenital deafness in the case of a five year old child? Physically he may be on a par with the hearing child, but intellectually he is at least three years behind. He has not learned to speak, he has not acquired any language, and therefore has had no way to receive the heritage of knowledge that has been passed on to the hearing child by those around him. Hence his intellect has not been developed as has that of the hearing child, and in intellectual capacity as well as attainments he is far behind.

The greatest deprivation resulting from early deafness is the interference with the ordinary means of communication. If some way could be devised to enable the little deaf child to learn to understand what was said to him and then to learn to speak himself, much of the disadvantage of deafness would be removed. Such a way *has* been devised and is daily put into successful operation all over the world, but its beneficent work is not begun until from five to seven of the most precious educational years of the child have been practically wasted.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo. April 28, 1915.

It is not possible for the untrained and inexperienced mother to do much toward teaching her little deaf baby to talk, but she *can* do very much toward giving him a knowledge of language and an understanding of what is said to him. In order that it might be possible to put into the hands of mothers the practical directions for accomplishing this, I have prepared a little handbook called, "What the Mother of a Deaf Child Ought to Know." It is only the physician that can get the knowledge of such a book to the mother at a period early enough to be of greatest service; and the physician to whom a mother brings her little deaf child for help, unless he can restore normal hearing to the child, cannot do him or his mother a greater service than by securing for her the information that will enable her to save for her child educationally the first five years of his life.

But your responsibility toward your little deaf patient does not cease when you have enabled his mother to start him on the road to language and speech. Cases will come to you when they are already five years of age, also cases where deafness has occurred adventitiously after speech has been acquired. You must give wise educational advice in these cases as well as treat them surgically and medically.

You all know that the child whose hearing is seriously impaired between the ages of four and twelve requires the most prompt and skillful training to prevent serious deterioration or even loss of speech. He also requires the immediate beginning of training in lip-reading by means of the eye to supplement or replace the comprehension of speech by ear.

The physician should, therefore, urge the parents of the deaf child who has reached the age of five to place him under special instruction *at once.* But he should be able to offer special and not merely general advice. Where can the child be properly instructed and at what cost. Every state in the Union provides at least one school for such pupils. These schools are free. Not only is the teaching free, but board and lodging are included, and in some cases clothing and transportation. In some states and cities free day schools are provided, and these are yearly increasing in number. The location of, and full information concerning the school nearest to any locality can be obtained from the Volta Bureau, Washington, D. C., or I will be happy to supply the data in the form of a reprint from the Laryngoscope to any one who wishes it.

And now I must say something about a subject that is of vital importance to the deaf child and upon which you ought to be intelligent. Every deaf child of normal intellect, whether congenitally or adventitiously deaf can learn to speak and to understand when spoken to. This is a thing greatly desired by all parents of deaf children.

Unfortunately all deaf children do not have as good a chance to acquire speech and the understanding of speech by means of the eye as they ought to have, and could have if the public fully understood the situation.

Deafness has a great tendency to segregate its victims from people in general. If there is added to this inherent tendency the use of a language unfamiliar to most people, the degree of exclusion is vastly increased. It is difficult for a deaf person to learn to speak and to interpret the movements accompanying speech without hearing the sounds. Naturally inventiveness has been occupied in devising some form of communication more evident to the eye than the small movements of speech. From this has resulted finger spelling and gestural signs. They are, of course, a much easier form of intercourse for the deaf than speech, but they have the immense disadvantage of not being the common vernacular.

It is possible to learn the finger alphabet in an hour or two, and a month of practice will give an intelligent man a fair command of gestural signs. But it is not possible to learn to speak and to understand speech except by long years of patient effort and expert training.

If during the educational years between four and sixteen finger spelling and signs are employed, or permitted in the training of the deaf, the maximum efficiency in speech and lip reading cannot be attained.

By an unfortunate circumstance the education of the deaf in the United States was started wrong, and continued wrong exclusively for fifty years. A method was brought here from France that was long since abandoned there, but has been clung to here, and a hundred years has not enabled us as yet to recover entirely from the initial error. In many of the State schools for the deaf the old silent methods of instruction and communication are retained today, and while they call these schools "combined," by which is meant the combination of silent and speech methods, the predominant characteristic in them is intercourse by finger spelling and signs. This destroys the practical usefulness of the oral instruction given.

Parents and the intelligent public are daily demanding the abandonment of silent methods, and I hope you will lend the weight of your influence in favor of the reform.

Today all the deaf children in Massachusetts schools, as well as those in Rhode Island, are instructed without recourse to finger spelling or signs. The largest school for the deaf in the world, the Pennsylvania institution, is also conducted on this basis, as well as eleven other boarding schools and sixty-six public day schools and sixteen private and denominational schools, ninety-four in all. If this can be successfully done in one place, surely it can be done in all places.

I ask you, therefore, to urge your patients to choose oral schools where it is possible, and when no oral school is available to lend their earnest support to all efforts to procure a change of policy in their local school.

After the reading of the papers Prof. Wright presented some of his pupils. In introducing this portion of the program the President of the Section told a story of the wife of one of the physicians present, who had spent two weeks in a boarding house in Florence, Italy, with a young lady who had been educated in Mr. Wright's school, and though she saw her daily at table and elsewhere, and talked with her and heard her talking with others, did not discover that she was a "deaf mute." The use by the President of the word "deaf mute" in describing a person who had such a command of spoken language as to keep her companions in ignorance of the fact that she was totally deaf from birth, was such a beautiful Irish Bull that it gave Prof. Wright a fine opportunity to emphasize the desirability of substituting the single word deaf for the misnomer "deaf mute" in the case of the orally taught deaf. Unfortunately, many of the schools for the deaf in the United States do turn out "deaf mutes," but that term should not be applied to the speaking deaf.

Prof. Wright said that deaf children form three general groups for educational purposes.

First—Those who from birth or early infancy have been partially deaf, and by reason of their impaired hearing cannot make satisfactory progress in ordinary schools.

Second—Those whose hearing has been seriously impaired or destroyed after speech had been acquired.

Third—Those who have been totally deaf from birth or early infancy.

To illustrate the first class, Prof. Wright introduced little Jack ———, eleven years of age, who is now able to converse readily with anyone on any subject that a boy of eleven is interested in. He can now understand familiar language when spoken in a natural conversational voice three feet from his ear. When facing the speaker and with a good light, he does not appear deaf at all. This little boy was treated by Dr. Dench, of New York, when about three years of age, and later by Dr. Fairbairn, of Buffalo. As a result of their work his ability to perceive sounds has been much increased, but without special educational treatment he would not have been able to attain his present intellectual status. He is an excellent example of what intelligent co-operation of physician, educator and parents can accomplish. Prof. Wright talked with Jack in a perfectly natural way about his school work, his summer plans, the war, baseball and other current topics.

Emerson R——— was then introduced by Prof. Wright as an example of the second group. Emerson is fourteen and became totally deaf at seven as the result of abscesses in the ears. He had the normal speech and language of a bright boy of seven. He was placed under special instruction within six months after becoming deaf. Since he was seven he has been obliged to depend upon lip reading for all his intercourse with people, and in all his school work. In spite of his great handicap he is educationally on a par with hearing boys of his age and hopes to enter a New York City public high school next September.* His speech is not quite so distinct as when he lost his hearing, but is easily understood by anyone. Prof. Wright asked him many questions, some of which were suggested by the audience. One gentleman wished to know at what distance the boy could read the lips and Prof. Wright moved away some fifteen feet and continued to carry on the conversation.

The third group was represented by little Jane P———, a bright and attractive little girl of nine, who was born totally deaf and entered Prof. Wright's school at five years of age. She counted a handful of coins, told the time by a watch, wrote a little "Mother Goose" rhyme on the blackboard and then read it aloud very nicely. She replied clearly and intelligently to Prof. Wright's questions, and expressed the hope that she could visit Niagara Falls in the afternoon—a hope that was fulfilled. She was a winsome, natural little child, who gave no suggestion of deafness except in her rather monotonous and somewhat slow speech.

THE BLIND CHILD.†

By F. PARK LEWIS, M.D., F.A.C.S.,

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IN the training of the blind child it might naturally be assumed that it would be with the teacher, rather than with the doctor that the parents should be concerned. Unfortunately, the teacher does not come into the home, and is not brought in touch with the child until the first plastic and most valuable teaching years have past. The mother, in rare cases only, has had occasion to think of blindness as one of her problems. She finds herself, therefore, wholly unprepared for the great responsibility of directing the blind child's life which has suddenly devolved upon her. She does not know to whom else to turn for help, so she very naturally seeks the aid of the physician, through whose assistance the child was brought into the world. Indeed, her first anxious question after the infant is born is: "Is my baby all right?"

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* Since this paper was read Emerson has entered the Stuyvesant High School in New York City, and finds himself able to hold his own among the hearing boys of the school both in his lessons and in the social intercourse of the school. January, 1916.

† Read at the Annual Meeting of the Medical Society of the State of New York at Buffalo, April 28, 1915.

The doctor who has given so much thought to the cure of disease, unless he has also been a student of social conditions, has not, at least until recently, concerned himself with child welfare. Within the last few years the study of the child has taken on a new interest and an added importance, but even within this field comparatively little has been said or written in relation to the management of the child whose possibilities are limited by some physical imperfection.

There is no one, therefore, who could more properly than the doctor advise with the parents of a blind child, or of one whose sight is so defective as to materially limit its possibilities of normal development through this affliction.

It is most important, therefore, that he should not only be able to recognize as soon as possible after its birth that the child is blind when this fact exists, but he should be able to suggest to the parents what course should be wisely pursued in regard to the care, the education, and the training of the child during those intervening years before he could be sent to one of the special schools which has been provided for him.

There are three things, therefore, which I think it might be well to emphasize. First, the necessity of recognizing the fact that the child is blind or has defective sight at the earliest age possible. Second, the manner in which the brain is developed through the training of the remaining special senses in the absence of sight. Third, the existence of that unusual condition, more highly developed in the blind than in those who see, and what is sometimes termed the sixth sense, or touch at a distance, but which consists in the recognition of the nearness of any material body having a sufficiently large surface area, by the perception of its approach through some sense other than that of conscious sight, hearing or personal contact.

If there is no reason to suspect that the sight is imperfect, it is of great importance that the existence of marked refractive errors be discovered as soon as possible. In a very large number of markedly hyperopic eyes, or those in which the two eyes are focally different, and more especially when one eye converges, and there is a permanent squint, the brain area corresponding to the sight center of the inturned eye ceases to function, and following the law of nature, those functions which are not used cease to have the power of use. There has developed, therefore, an amblyopia which if uncorrected, becomes permanent, and a semi-blindness of the inturned eye, lasting through life, is the consequence. If, on the other hand, the proper refractive correction is made early enough, and the neurons corresponding to the sight center are made to function, the sight may be permanently preserved. It is a matter of greatest importance that in cases of squint the child be sent to an oculist as soon as the defect is discovered. I have, myself, used with great satisfaction strong correcting glasses upon a baby as young as five and one-half months old. Sometimes the presence of congenital myopia in very high degree gives the child a vague blind look which may lead to a mistaken diagnosis of idiocy. I have seen such an instance in the case of a five-year-old child whose eyes were myopic to the extent of ten diopters. To such a child all objects beyond five or six inches would have the appearance of being shrouded in mist, and the educative value of the visual pictures that are constantly being presented to the seeing child was thereby lost to him. The correction of the refraction gave the child such a degree of improved mental control as would hardly be thought possible.

In those cases in which gross physical changes are present, such as: staphyloma, or corneal opacites following ophthalmia neonatorum, and in which marked deformity of the eye ball results, it is, of course, easy to determine that the child is blind. This is equally true whenever the eye structures are obviously abnormal, such as in that rather rare condition called anophthalmia, or absence of the eye balls, in buphthalmos, or abnormal enlargement of the eye ball, in complete congenital cataract, and in other like noticeable defects. But there are many cases in which markedly imperfect sight or total blindness may be present with an apparently perfectly normal eye ball. These are the congenital atrophies of the optic nerve, or other deep eye ground changes which are discoverable only by the use of the ophthalmoscope.

To Determine Whether the Child Is Blind.

As all young babies roll their eyes aimlessly during the first weeks of life it is difficult to determine, from observation merely, the absence of sight. This difficulty is increased, if, as more commonly happens, blindness is not complete, but objects are imperfectly seen. If, however, the pupils are widely dilated and unresponsive to light, and the eyes continue to move aimlessly from side to side without attempt to fix them upon an object, and more particularly in the presence of nystagmus, or spasmodic twitching of the eye balls, associated with an unwillingness or an inability on the part of the child to follow a light with his eyes when it is moved before him; all of these would be strong presumptive evidence after the sixth month that the vision was so imperfect as to warrant an ophthalmoscopic examination, by which a conclusion can be reached with much greater certainty.

However rapid may be the development of the child after it has reached school age, the period of greatest plasticity and quickest responsiveness is during the months of babyhood and the early years immediately following, and it is through the sense of sight that impressions, carried to the cortex, exercise the most profound influence upon the brain development. With the visual images every other sense impression is correlated. The object which the child sees, in order that he may realize its position in space, must be verified by the sense of touch. All of the sensory nuclei, therefore, which have been energized by the touch of the fingers if the object is held in the hand, of the feet as they touch the floor, of the arms and limbs as they move through the air, every one of these millions of neurons is brought into direct relationship with the corresponding number of other neurons in the sight center, so that every motion is sending a flood of nervous energy surging through the brain of the child. In that way he becomes conscious of his position in space, and he develops what is known as the stereognostic sense, or the consciousness of solid objects.

Cut off as the blind child is from the primary energizing influence of the visual impressions he is intellectually hampered and limited unless every possible supplemental effort is employed to replace, as far as may be, the advantages which, in comparison with the seeing child he is obliged to sacrifice.

The blind baby, not seeing the objects around him, is not, as is the seeing child, unconsciously or persistently being educated as to their form, their shape, their size, their importance, their meaning, in a word, their values. He lives in the dark, and every motion or every step which he attempts to make is an experiment and an adventure. The next step may precipitate him he knows not where. If may be from the top of a stairway. He can have no means of knowing. He is living in a world separate and distinct from that of his seeing associates. This fact should be early recognized and constantly borne in mind.

THE BLIND BABY.

The blind baby must be talked to more than the child who sees. He must be allowed, carefully, to touch the objects about him, in order that in that way he may learn what he can about them. He must not be allowed to be frightened by taking a misstep. He must not be startled by being touched suddenly and without warning. A nervous impression of that kind may leave its result for months, if not for years, upon the sensitive organism. When he is old enough to creep he should be allowed the freedom of the room, from which all objects against which he might hurt himself have been removed. The floor should be of one level so that there may be no pitfalls for him. He must be allowed all manner of harmless things to handle, and he must always be spoken to as one comes near him that he may not be startled. Large motor and sensory areas may be trained by allowing him to feel, to touch, and to handle things varying in degrees of hardness, and smoothness, and of different shapes and forms. He will in that way be getting such approximate impressions as he can—limited as those are compared to the possibilities of the seeing child.

At a very early age, too, auditory areas may be actuated by singing simple melodies to the child, not in a vague and meaningless way, but carefully and in tune where it is possible for the mother to do so. The attention in that way can be directed and a recognition of different tones will begin at a much earlier age than is ordinarily supposed. Let it constantly be remembered that all of the moving pictures that pass before our eyes are blotted out for the blind baby. There is nothing but darkness before his unseeing eyes, and this monotony must be varied by greater attention to details that will interest him than would be necessary with a seeing child.

At a very early age any other existing corrigible physical defects should, if possible, be removed. It is bad enough for the child to be blind. He should not be still further handicapped by the presence of large tonsils, by adenoids, and the consequent otitis and deafness, or any other defects of the body.

If the eyes are so deformed as to be not only useless, but offensive in appearance he should have such surgical attention as will make them appear as natural as possible. It is much easier for him if this is done while he is young. It saves him the embarrassment and handicap in being needlessly disfigured through the years in which he is most sensitive to criticism.

BLINDNESS.

It is at this period in the child's life that blindisms develop. It may be due to his struggle to see, or it may be due to irritation still existing that he acquires the habit of screwing the shut fists in the orbits, making useless motions with the face and head and limbs, rolling the head from side to side, snuffing the nose, twitching up one side of the face, these and numberless other disagreeable habits may at this time of the child's life be acquired, which later are exceedingly difficult to correct. Any habits that cause him to be less agreeable will make life harder for him.

The training of the voice to make it as musical and sympathetic as possible will be a great advantage to the child, and a quiet, self-possessed manner, instead of a nervous and jerky one will not only make him more agreeable, but will give him balance of mind as he has poise of manner.

In a word, before the child can be placed under the systematic and special training provided for the sightless much can be done by the intelligent mother, under the advice of the physician, to so aid the child's development as to make life easier and simpler when the systematic training of the school is commenced.

The time in which the blind child should be placed under the instruction of those specially qualified to train him in a school for the blind is the earliest period at which children are admitted, and that is kindergarten age. Very often mothers do great injustice to their children by failing to realize this important fact. A mother of a bright five-year-old child who was advised to send her to a school for the blind, said, "Oh, but I couldn't you know, I am her mother." Not knowing that she was withholding from that child the one possible advantage that could in any way take the place of its lost sight.

DELAYED INSTRUCTION.

It is not at all unusual to find that children thirteen and fourteen years old are reluctantly taken to the State School at Batavia, and find themselves handicapped by their utter inability to do the simple things that other blind children easily do, because of the mistaken kindness of parents and friends. They are unable to put on their own clothes, to button their shoes, or to use their hands and fingers in the simplest mechanical effort. The handicap which they suffer is so great that it can never be completely overcome.

While the child is still very young is the opportune time, therefore, for the physician to make these facts clear to the devoted, but uninformed parents, and to help them to realize that the greatest kindness which they can show to their afflicted child is to give him the training which alone will enable him to compete in the activities of life with those who see.

SCHOOLS FOR THE BLIND.

In the kindergarten, as well as in all grades of a school for the blind, the same ends are sought as in the schools for the seeing. In the literary work the curriculum is that of the grammar and of the high school. In the department of music the teaching is that of a thorough and complete school for music, including harmony and composition. Many of the blind, by reason of the concentration necessary, acquire the rare quality of absolute pitch, which is unusual among the best trained of those who see. Those who are gifted with musical ears, and are willing to do the necessary hard work, become exceedingly proficient upon the piano and organ. The hands of the pupils are strengthened and the muscles coordinated by manual training; while those having less intellectuality, but greater manual skill, are taught such industries as may be performed without sight. These are more varied than one would believe possible.

TOUCH AT A DISTANCE.

The dependence of the blind upon the sense of touch develops in some instances to a very high degree that peculiar quality of recognizing the nearness of any material body by some unusual development of the external sensory nerves.

It is a very generally recognized fact that when one passes through an absolutely dark hallway into an equally dark but open space beyond there is a consciousness of a sense of freedom. Conversely, as one approaches a solid wall in the darkness or with the eyes shut, is a feeling of obstruction. It is difficult to say just what the feeling is that one experiences. It can be described only as a consciousness of the approaching nearness of an object having a reasonably large surface area. In the blind this is often developed to an extraordinarily high degree.

A most interesting study of this sense, which is called "Touch at a distance," was the subject of a paper read at the International Congress for the Blind held in Naples in nineteen hundred and nine. It has also been considered by the French Academy. Curiously enough, however, it has received comparatively little general recognition, and not very wide scientific study.

Among the more intelligent and quickwitted pupils at the State School for the Blind at Batavia this faculty is so highly developed that it is not at all uncommon for some of them to be able to know with considerable certainty while walking along the street when a house is being passed and when a vacant space. Very many of them can tell when the object is a tree, and some of them are sufficiently discriminating to distinguish between a tree and a post; as the latter leaves an open space above the height of the head.

In order that we might determine how highly developed this sense was in the blind, experiments were made with many of the pupils in the State School. The tests were first made by placing some object in the gymnasium and the pupil was directed to locate it. This was very universally and easily done, until it was discovered that on one side of the gymnasium was a heating apparatus from which issued a slightly hissing sound of escaping steam. Whenever the test object came between the radiator and the boy who was being examined the sound was diminished, and it was soon evident that in this particular room the test object was located almost wholly by the sense of hearing.

In order to eliminate any such possibility a special target was made which could be suspended upon a standard, the width of the standard being about three inches and its height six feet.

The target itself was composed of thin folding boards, which when opened to the fullest extent made a surface covering four square feet. When it was folded once it was two feet long and one foot wide. When folded again it was one foot square. This target was taken out upon the lawn on several occasions when there was almost no air stirring. The soft velvet surface of the grass made it impossible to detect any footfalls, or to have any appreciable amount of sound reflected from the target as was done within the walls of a closed room.

A small boy who had absolutely no light perception was taken out upon the lawn, and the target set up, and then from some point remote from it the boy was told to locate it. He moved carefully round as a pointer dog might, with his face bent forward, until he suddenly seemed to recognize the presence of some obstruction in one particular direction. He gradually approached it, having been told to indicate immediately upon recognizing its presence the direction in which it stood from him. Again and again, when it was opened to its fullest extent, he located it exactly at a distance of fourteen feet. It was folded once and with almost equal certainty he recognized it at ten feet. It was folded again and he located it at six feet. The target was then taken from the standard, and he located the narrow strip of wood of which the standard was constructed at a distance of three feet. Many other of the pupils were able to locate the standard, but none with the degree of accuracy, quickness, and at the distance of which this lad did.

The opinion has been suggested that it is in the hearing that this sense finds its center. There is every reason to believe that the ears enter largely into it, although it does not seem that it is solely in the sense of hearing that this faculty resides.

This same lad was taken in the large hall of the school and pledgets of cotton placed in his ears, and he seemed quite unable to locate the target similarly placed. However, blind people who have had the face covered with a veil are equally confounded when the tests are made. It is very probable that the pressure sense, excited by the slight compression of the air between the solid surface and the surface nerves, both of the face and of the tympanum, enter largely into this phenomenon.

It is our purpose to make a series of very exact scientific investigations, to be reported later, when the time can be afforded, to the consideration of this subject alone, as it is one which appeals not only to the ophthalmologist, but as well to the otologist, to the neurologist, the physiologist and the psychologist. It is merely touched upon in the limited time allowed to this paper as one of the intensely absorbing topics associated with the study of the blind.

IMPLANTATION OF PLATES OF VULCANITE AND CARTILAGE IN THE NASAL SEPTUM.*

By ALEXANDER C. HOWE, M.D.,
BROOKLYN-NEW YORK.

THE purpose of this work has been to determine if the defective or deficient cartilage of the nasal septum can be replaced by other materials, for the correction of nasal deformities, for the reinforcement of the nasal bridge after extensive submucous resection, and for the replacement of the cartilage removed in the septa of children. The work accomplished so far demonstrates that plates of cartilage from the nasal septum of one person can be implanted into the septum of another, and that plates or splints of gutta percha or dental vulcanite can be inserted into the nasal septum without subsequent slough or irritation. I do not know that any one has done work along similar lines for the same object.

The following is a brief report of the work performed and of the results:

Case 1. May, 1914. Mr. J., age 22. Badly deflected septum with a partial traumatic perforating ulcer, extending through the mucous membrane on one side and the cartilage. Submucous resection. Cartilage removed in as large a section as possible without perichondrium. The section removed was reshaped and reinserted in the septum. The cartilage became infected at the site of the perforation. Necrosis necessitated its removal.

Case 2. May, 1914. Mr. M., age 31. Septum buckled with sharp anterior angles. An attempt had been made three years earlier to cut off the spurs. In elevating the mucous membrane over this area a rather large perforation occurred. The mucous membrane on the opposite side of the septum was elevated, having the periosteum attached. The plate or cartilage removed was reinserted with the side having the perichrondrium attached toward the perforation. The cartilage remained uninfected and the perforation closed.

Case 3. June, 1914. S., age 25. Small plate of dental gutta percha was inserted in the nasal septum at the completion of a submucous resection. The insert remained in position without irritation or slough. Six months later the insert was still in position, and the mucous membrane over it apparently normal.

Case 4. June, 1914. E., boy, age 12. Nasal bridge below nasal bones depressed. Nares partially collapsed. Septum thickened so as to completely fill both nasal openings. Nasal breathing was impossible, and the boy's condition made relief absolutely necessary. The restoration of nasal breathing necessitated the removal of almost the entire cartilaginous portion of the septum, even the portion serving as slight support to the bridge of the nose. During the course of this operation, my assistant, Dr. A. Roth, performed a submucous resection on an adult—negative Wassermann—removing the cartilage in one large section with the perichondrium attached to one side. This was shaped like a triangle, one side one-half inch long and the other two about an inch. An incision was made through the perichondrium along the bridge of the nose, beginning at the lower end of the nasal bones and extending toward the tip for about five-eighths of an inch. The short side of the cartilaginous splint was inserted through this slit, the nose raised to the required height, and the point of the splint formed by the long sides of the triangle was anchored in a depression made in the floor of the septum. This not only raised the depressed nasal bridge, but the alæ also, and left the nasal openings free. There was very little more reaction than usual. The implant remains at the present time healthy and the nasal breathing excellent.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 29, 1915.

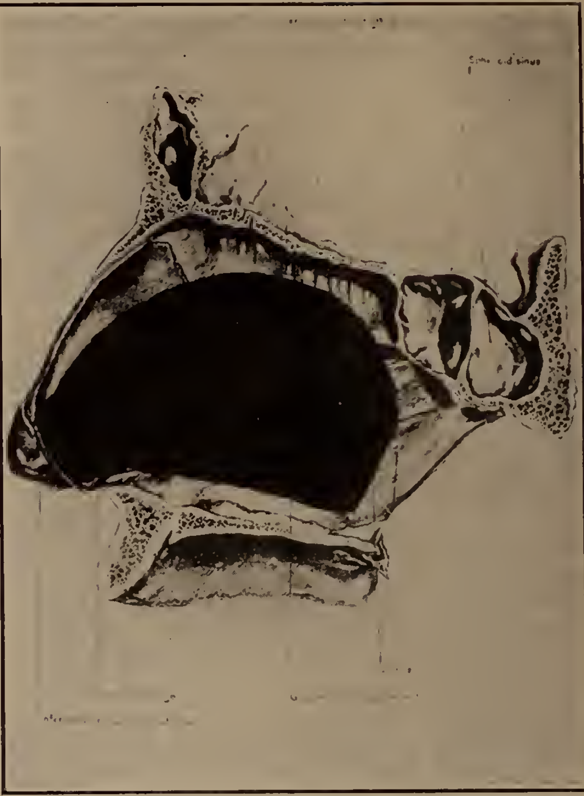
Cases 5, 6, 7, 8, 9. Were inserts of larger or smaller plates of dental gutta percha made in June, 1914. All remained in position without undue reaction or infection, during the two or three months they were under observation. These cases had the usual septum deflections that required a submucous resection.

Case 10. Sept., 1914. Mr. A., age 27. Bad angular deflected and dislocated septum. Mucous membrane perforated on one side during operation. Insert of a rather large triangular plate of dental vulcanite made. Reaction and swelling considerable. Examination showed the edge of the insert exposed in the perforation, and explained the infection around it. The vulcanite was easily removed a week later by reopening the original incision. Healing was rapid and the ultimate results of submucous resection as good as if insert had not been made.

Case 11. Sept., 1914. Male, age 18. Deflected septum requiring submucous resection. The cartilaginous bridge remaining was very slender. Triangular plate of vulcanite was placed under this slender bridge to reinforce it and the initial incision sutured. Three days later, reaction normal and sutures removed. In the removal of the sutures the edge of the wound was deeply nicked, exposing the edge of the insert. Infection followed and the insert removed about ten days later with no effect on the ultimate result of the submucous operation.

Case 12. Nov., 1914. Male, age 24. Deflected septum. Submucous resection. Insertion of triangular plate of vulcanite. Recovery uneventful. Insert in position at present time.

Case 13. Jan., 1915. Male, age 21. Deflected septum. Submucous resection. Insertion of vulcanite plate. Recovery uneventful, and insert remains to date without irritation or evidence of infection.



No. 1. The above illustrates the extent of septum that is frequently removed in a submucous operation.

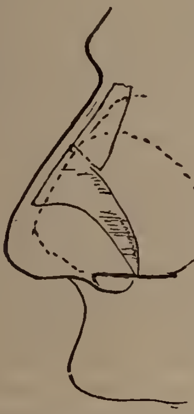
Cases 14, 15, 16. March, 1915. Implants of large plates of vulcanite made at the time of a submucous resection. All inserts remained without evidence of irritation or slough.

For lack of material in the way of external nasal deformities or saddle-back noses I have been unable to demonstrate that plates of vulcanite can be used in the same manner as the cartilaginous plate was used in Case No. 4. The results show, however, that materials like gutta percha and vulcanite will remain in the nasal septum at least ten months without slough.

If time proves that these results are permanent and that inserts of vulcanite, celluloid or cartilage from other sources can be made with a fair degree of certainty of asepsis, then we are in a position to correct certain types of saddle-back noses, reinforce the slender nasal supports after a submucous and replace the septal cartilage in children.

The natural support for the nasal bridge is from below. It is, so to speak, "shored up." Most of the methods in use today, including Dr. Carter's of New York—probably the most successful method used at the present time—support the nasal bridge from above. A lever in the form of a narrow strip of bone is inserted under the skin along the nasal bridge. The lower end of the nasal bones, if any, serve as a fulcrum; the upper end is anchored under the periosteum at the root of the nose. While some of the results of this method have been very brilliant, yet mechanically and structurally the method is wrong and weak, *i. e.,* the simplest and most natural method of support is from below. Litterally to "shore up" the bridge of the nose. The first steps toward the application of this method are the development of asepsis and the finding of materials that will remain buried in the septum indefinitely. The mechanics involved are simple. A description of the methods I have used will best indicate how I have tried to meet these conditions.

A case to be operated upon has the hairs in the vestibule of the nose snipped off as thoroughly as possible. After cocainization, the nasal cavaties are irrigated and wiped out. The nose, cheeks, upper lip and the nares well above the point of incision are cleansed, dried and generously painted with iodine. After a few minutes the iodine is washed off with alcohol and a protector of gauze strapped across the upper lip close to the nose.



No. 2. The area within the dotted line represents the extent of septum removed submucously. The triangle represents the supporting splint of vulcanite, the point of which is anchored to the bony floor and opposite side or end passed through a slit in the periostial sack of the septum till it is in line with the nasal bones above.

The incision for the submucous operation is made well down on the cutaneous surface and carried outward over the floor of the vestibule as far as necessary to give sufficient opening through which to work. The mucous membrane is elevated and the incision through the cartilage is made as far back as the conformation of the cartilage will permit. The defective and crumpled cartilage may be removed from its most anterior border. Whether the cartilage along the entire bridge of the nose is removed or not depends upon its thickness and position. If thin and not displaced laterally, the mucous membrane should be elevated up to the point where the perichondrium is reflected over the edge of the cartilage and passes down the other side. How much of the rest of the septum is removed depends upon the extent of the deflection.

The perichondrium for the sake of brevity can be considered as a sack into which the cartilaginous part of the septum is inserted, flattening it out as a coin inserted in a glove finger would flatten it. Through the edge of this perichondrial sack along the bridge of the nose an incision is made from three-eighths to five-eighths of an inch. The incision should begin at the lower end of the nasal bones and extend downward toward the tip as far as necessary. If a strip of cartilage remains along the edge of this sack, the incision should be on the concave side of the cartilage.

The splint or plate of cartilage or vulcanite is shaped like a triangle with one side long enough to give the necessary support to the nasal bridge, and the other two sides long enough to reach well back along the floor of the septum or the ridge of the vomer. The long edges or sides are curved backward so as to remove the anterior border of the insert as far from the initial incision through the mucous membrane as possible, to guard against infection.

The lower angle or point of the insert is introduced into the incision first and carried well back. Then the insert is brought forward till the short side is passed through the incision in the perichondrium. The desired point, to anchor the lower point of the insert, is determined and a groove or notch made in the septal floor, sufficiently deep to keep the lower point of the insert from slipping. All blood possible is removed from the inter-membraneous space, the initial incision sutured and Thompson's intranasal tampons covered with Cargile membrane introduced on both sides and left there for 36 to 48 hours.

Where the perichondrial sack is sufficiently large to permit the nasal bridge or outline to be raised to the desired point, I do not believe it will be necessary to make an incision through the perichondrium.

Where the nasal bridge is bent to either side, necessitating an incision through the cartilage close to the nasal bones, Dr. Carter's bridge splints ought to be used to relieve the skin pressure on the edge of the insert and to give the tissues a chance to form a sub-cuticular bed for the insert. In fact, I believe it will be advisable or necessary to use Carter's bridge support in all cases when the insert is passed through the perichondrium. This procedure, of course, is impossible in a perforated septum. Where the nasal bones are deficient, I do not know whether the nasal bones could be separated and the splint introduced between them or not. The advantages of this procedure are:

That a nasal deformity can be corrected under a local anesthetic at the time of the necessary submucous operation; that a stronger and better adjustment of the nasal outline can be obtained; that, if the Carter bridge is not necessary, the patient is not invalided more than would be necessary for a submucous resection.

In conclusion, the cases reported demonstrate:

That cartilage with perichondrium intact on one side can be transplanted from one septum to another.

That the replacement of cartilage in this way will enable us to operate in younger children than we have felt justified in doing.

That foreign materials like gutta percha and dental vulcanite can be inserted in the nasal septum and will remain in all probability indefinitely.

That the cartilaginous portion of a depressed nasal bridge and collapsed alæ can be shored up by splints inserted in the septum.

MECHANICAL RESPIRATION PRIOR AND SUBSEQUENT TO JULY, 1887, SUPPLEMENTARY TO OPERATION OF TWENTY-EIGHT YEARS AGO, PUBLISHED IN THE PROCEEDINGS OF THIS SOCIETY FOR 1888.*

By GEORGE EDWARD FELL, M.D.,

BUFFALO, N. Y.

FOR this paper, we may divide mechanical respiration into the pre-postural,[1] postural, or non-mechanical period, forced respiration,[2] and the present or posito-negative period.

Pre-postural period.† The bellows (mechanical respiration) were utilized in this period to a considerable extent, but without any reported success, and were "relegated to their place by the fireside" when the postural methods of Marshall Hall, and others, were introduced following 1856.

Postural period. . (Non mechanical). The methods of Marshall Hall, Sylvester, Howard and others were so successful (to a certain degree), that the entire medical profession seemed to be obsessed with the idea that nothing more was needed for artificial respiration on man. The interdiction by Marshall Hall, in his "Ready Method in Asphyxia" that "No bellows or Forcing Instrument should be used" strongly supported this view.

Forced Respiration Period. The history of this period really begins with the vivisection work of the author, in the Medical Department of the University of Buffalo and the University of Niagara in this city, from his student days, 1879-82, to his work as a teacher of physiology in the latter institution from about 1883 to 1893, to the inception of the negative respiration of Professor Sauerbruch, in 1904.

It was by Professor Dr. Eli H. Long, of the University of Buffalo (a classmate of the author), that this title was given to this period, first suggested by the author to distinguish it from the then common term,[3] artificial respiration.

Posito-Negative or Present Period. About the year 1904, Professor Sauerbruch demonstrated his negative cabinet method, which has been fully described in the medical journals, and has necessarily changed our nomenclature from the forced respiration to the positive and negative respiratory methods which are now generally accepted. The intratracheal method of Dr. Meltzer is really a positive method, in which the air is forced to the bifurcation of the trachea, but requires four to six auto-expirations per minute, to allow a continuous satisfactory exchange of gases to take place. Respiration was made rhythmical in nature.

HISTORICAL CONSIDERATIONS.

At the completion of the first case of life saving by forced respiration in 1887, it was not known just what had been accomplished from a historical standpoint. That case, supplemented by those immediately following within about a year by the author, marked the beginning of a most important advance in the practice of medicine and surgery. It brought about a new epoch in historical medicine, which the twenty-eight years of continued progress since then, have fully established. The value of artificial respiration has been advanced beyond the expectations of the most sanguine.

It was not, however, until the year 1909, that we were able to refer to reliable historical data, which settled within reason, the controversy as to the originality of the work of the author in 1887. (This will be referred to later.)

CONDITIONS WHICH LED TO THE AUTHOR'S FIRST SUCCESSFUL OPERATION.

On one special occasion, when acting as assistant to our dear old Professor of Physiology in the University of Buffalo, Dr. William H. Mason, in 1880, or 1881, an unusually large Newfoundland dog was given an overdose of chloroform, respiration ceased, the dog was given up for dead, the class dismissed leaving but one student with the author in the laboratory. Gentle pressure at intervals was made upon the chest of the animal, and before long the dog was resuscitated. The professor was called from his room in front of the old college building, Main and Virginia Streets, and after congratulating his pupil on his resuscitative effort, he proceeded with the demonstration. This simple incident so impressed me, that credit must be given to it, as the incipient incident which led to ultimate success. The old bellows* (see illustration of old Vivisection Bellows) which I exhibit here were used on this occasion, and represent the entire mechanical features of the vivisection mechanism of the days preceding 1887. They plainly indicate that the operative mechanical procedure was but a makeshift to illustrate the mechanism of the respiratory function.

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* Read at the annual meeting of the Medical Society of the State of New York, at Buffalo, April 28, 1915.

† This changes the classification suggested in *Surgery, Gynecology and Obstetrics* (June, 1910), to one of a permanent arrangement.

* Presented to the author by the late Frederick Busch, Professor of Physiology, University of Buffalo.

THE PERIOD OF VIVISECTION PRIOR TO 1887 NOT ASSOCIATED WITH THE IDEA OF SAVING LIFE.

The old vivisection bellows which the author used in the Medical Department of the University of Buffalo when assisting Prof. Wm. H. Mason, Physiologist. They represent the entire mechanical features of the vivisection respiratory mechanism of the period preceding 1887. The methods of the physiological laboratory were materially changed by the author's work.

The method utilized in the vivisection laboratories, and in that of the University of Buffalo, where the author was an assistant to Professor Mason, and which was the most approved method at that time conclusively proves this. The dog was chloroformed, incisions made on each side of the chest, outlining extent of chest wall to be removed; hemorrhage lessened, not stopped by the free use of "per sulphate of iron," usually applied with a brush; the ribs cut or sawed, a few ligatures used on the larger vessels and the chest wall removed. The very last procedure before the demonstration was to incise the trachea, insert the nozzle of the bellows, inflate the lungs, allowing the expiration to escape through the air holes in the bellows.

From this it is seen that the respirations were not systematically controlled except by the extent of distention of the exposed lungs and that the connection of the bellows with the trachea was an imperfect affair with no necessity for precise work and for the demonstration only, as after this had taken place, the medula was punctured, and death produced.

With a few exceptions, and these of little import, the highest medical authority condemned the use of the bellows as a life saving measure.

ALL PHYSICIANS OPPOSED TO INNOVATION OF AUTHOR.

After my first three cases letters were received from a number of physicians who all believed forced respiration would do no more than the "Sylvester postural" method. In the discussion of my first case, presented to a section of the International Medical Congress, Washington, D. C., September, 1887, the same opposition appeared. They all believed me to be using the old vivisection methods, or misunderstood the import of my operation. My paper was refused publication in the proceedings of the Congress, simply possibly because they did not consider it of sufficient importance and gave as an excuse in a letter received from the Surgeon General that papers reporting but one case were not published in the proceedings.

TREASURY DEPARTMENT,
U. S. MARINE-HOSPITAL SERVICE,
Office of the Supervising Surgeon General.
September 30, 1887.

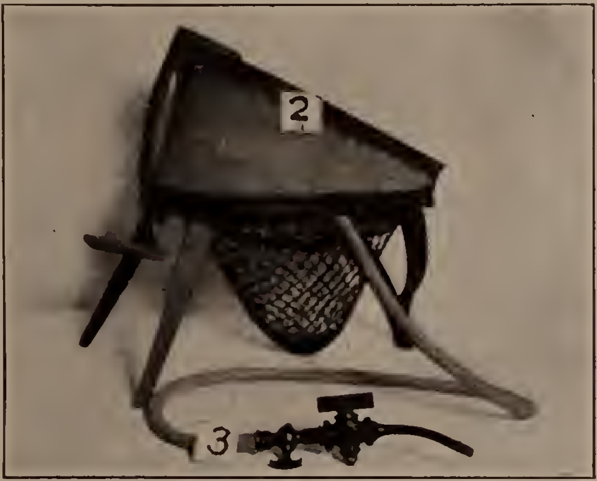
MY DEAR DOCTOR:

The Committee on Publication have concluded to exclude from the Transactions the reports of single cases. I am, therefore, under the necessity of returning your paper on "Forced Artificial Respiration in Opium Poisoning."

The electrotype is also returned.

(Signed) JOHN B. HAMILTON,
Secretary General.

The purport of these citations is to show that among the leading practitioners of that time there was no difference of opinion. All thought the "postural" methods could not be improved upon by any ("dangerous") forcible measures through the use of the bellows, "or any forcing instrument."



New vivisection apparatus devised by the author for use in his own laboratory. The bellows, No. 2, as will be seen, are provided with a rubber diaphragm which supplied a steady, constant stream of air. 3. The control valve, when turned one way, passed the air from the bellows through a long rubber tube into the lungs; with a quarter turn it released the air from the lungs and cut off the bellows supply. With this apparatus the author made his first operation and saved his first life.

HOW THE LABORATORY VIVISECTION METHODS WERE IMPROVED BY THE AUTHOR.

Within a few years after graduation, University of Buffalo (February, 1882), being appointed to the chair of "Physiology and Microscopy" in another medical school,* the author had opportunities to prepare new and advance the vivisection respiratory methods, for convenience in laboratory work.

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* Medical Department of Niagara University, Buffalo, N. Y.

These advances consisted in utilizing a bellows which provided a steady constant supply of air and control valve, and which were used by a foot or hand power. A canula (fenestrated) entirely separate from the bellows, was provided, to fit the trachea of a dog, in which it was secured with a ligature. Attached to it was a valve so arranged, that when turned one way it passed the air from the bellows through a long rubber tube into the lungs, with a quarter turn it shut off air from the bellows but allowed the air to escape from the lungs. This combination canula and valve was connected with the bellows by a good length of rubber tubing so that the movements of bellows did not affect the working of the valve in the least. It made our vivisection work much easier than the old plan of common bellows. (See illustrations 2 and 3.) This arrangement was used in my vivisection work for about five years without once giving thought to the idea that a human life might be saved by it, or even the life of a dog. As some noted experimentors, whose names I need not mention, have persisted in the belief that in my first case I used the original vivisection methods used prior to 1887.

I wish to emphasize these facts. The work of the vivisection laboratories of the land had not taught in any way that the life of a dog, let alone the life of a human being, could be saved by vivisection methods.

A TRIBUTE TO VIVISECTION.

But let me interpolate. To vivisection must be credited the beginning and wonderful progress of mechanical respiration as a life-saving appliance which so far has saved over fifty thousand human lives. The nations that throw vivisection to one side, inhibit the progress of medical science.

HOW WAS IT THAT A HUMAN LIFE WAS FIRST SAVED BY IMPROVED VIVISECTION METHODS.

This story is interesting and remarkable in the peculiar unfolding changes which brought it to its termination. It was June 23, 1886, when the author, was called to attend Mr. D., a drug clerk, who had taken an overdose of morphine the midnight previous. The Sylvester method was thoroughly utilized, but without success. It was then and there influenced by the labor of the Sylvester method, the possibility of saving human life by his laboratory method was deeply impressed upon the author, who remarked "If the opportunity presented he would make the experiment."

CONDITIONS OF THE AUTHOR WHICH FAVORED OBTAINING CASES.

It may be stated that the vivisection laboratory work of the author, 1886 to 1893, was entirely gratuitous, thus requiring that his livelihood and the support of his family be obtained through the practice of medicine and surgery, which accounts for the patients that were utilized in his respiratory work. No richly endowed original research institutions existed in those days.

HOW THE FIRST CASE OCCURRED.

A little over a year followed, when on July 23, 1887, at the age of 37 years, his first case presented, but strange to state, he had forgotten all about his resolve to use his vivisection methods. The Sylvester and every known means had been utilized to save the patient from the effects of 20 grs. of morphine taken early the previous evening.

The case was hopeless, the patient was placed upon a bed in the front room of his house, 37 Morgan Street, the data for his death certificate obtained, and at 5 o'clock in the morning was left to die, the doctor going to bed at his home or residence, 72 Niagara Street, near by.

THE PROGRESS OF KNOWLEDGE AND INVENTION SLOW AND UNEXPLAINABLE.

My own devised vivisection apparatus was in the basement of my home, two blocks away. It had been used on dogs at the old police headquarters, Pearl Street and Terrace, to determine the effect of the electric light current, on the exposed thoracic viscera of dogs in life. These experiments brought about our electrocution laws. Had the apparatus been at the college building, far away, this first instance of resuscitation by forced respiration would never have been recorded. The case in detail was reported in the proceedings for 1888, to which I refer those who desire to study it closely. Only features which appear of special interest will be presented at this time.

AROUSED FROM BED AT 8 A. M.

About 5 o'clock in the morning, thoroughly fatigued, and certain my patient could not live, I went home and to bed, to be aroused by a call from Dr. F. R. Campbell, about 8 A. M. He had been called to the case the evening before, but through illness could not attend. He reported the patient alive, his condition as follows: "Gasping respirations once per minute; pulse difficult to obtain at wrist; extremities quite cool, face and extremities cyanotic but pupils were still contracted." He suggested more atropia. We both walked to Dr. Gregory's drug store, near by, the corner of now, South Elmwood Avenue and Niagara Street and on leisurely returning found the pupils widely dilated.

Dr. Campbell remarked "We can do nothing more now." The resolve of over a year previous, even under the serious condition of the patient, now came to my mind, the support of Dr. Campbell was given, the vivisection apparatus obtained, all of which consumed time and the operation begun.

The First Successful Operation of Forced or Mechanical Respiration.

Tracheotomy, my first attempt, began; blood dark coffee color, twenty grains of morphia had been taken and absorbed. The difficulty of securing canula, too small for human trachea, was attempted by passing a curved needle and ligature about trachea. The result was that the trachea was cut between the rings, without securing the canula in place.

At one time we supported the canula by hanging it from the headboard of the bed, which answered before the patient became conscious, and then more trouble began, as the patient moved about, causing hemorrhage. Three United States soldiers in the house and Mr. Henry Hyer aided in restraining the patient. The operative work had closely occupied my attention, the cyanosis at the beginning was extreme, and after but a few forcible inspirations, a glance at the extremities startled me; the limbs and feet were bright red.

The hours of work with the Sylvester method had produced no marked effect, while this new method had within a few minutes, changed every corpuscle in the whole body it would seem, to the oxygenized condition. So sudden a change I had never witnessed in an animal on the vivisection table. I hoped, believed and knew that something unusual had been accomplished.

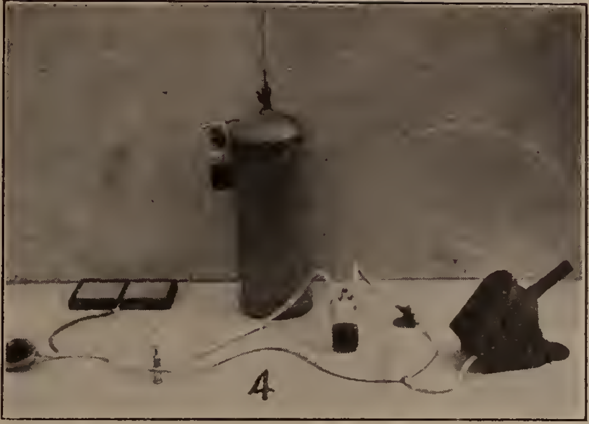
That any one witnessing such a transformation, knowing how it had been brought about would ever go back to the postural method where suitable instrumental or mechanical methods were available, seemed to me had been settled for good. Joy surged through me! And there arose in my mind, the momentous question, "Was it the first practical demonstration of this nature?"

But two and one-half hours of forced respiration had overcome a hopeless condition and placed our patient on the fair road to recovery. That night as a contrast to the cyanosis of the morning, he had an attack of delirium tremens, requiring four men to restrain him, but within a week I took him out for a drive.

Inadequacy of Apparatus Jeopardized Result of First Case.

Defects of this, my own laboratory vivisection apparatus for saving human life. Canula was too small for the adult human trachea and too long for convenient use.* Respiratory outlets too small to allow escape of tidal air. The valve and canula weighed nearly a pound, a heavy mass to handle in a human trachea. Every time the valve was turned the trachea was given a wrench adding to the hemorrhage. When the valve was turned for expiration, the bellows had to let up until the next insufflation. (Illustration No. 2.)

These were really objectionable conditions which were all corrected, fortunately, before my next, or the third case of forced respiration took place, or it would have proven a failure.



Complete Apparatus of Author as Originally Arranged.

On the right is the double bellows, which represents the continuous air stream device. This may be produced by a blower, properly controlled as to air pressure, run by electric or steam power for hospital or class purposes. Next in order to the left is the three-way connection on the anæsthetic control valve, the three-necked Woolf anæsthetic bottle, the oxygen cylinder, which with the anæsthetic bottle connects, through rubber tubing with the air control valve which lastly connects with the patient through an intubation tube, a face mask (or in later years an intratracheal tube on the Meltzer Auer plan).

The rubber manometer is shown to the left above the air valve. The control of the oxygen and anæsthetic is absolute.

Second Case Occurred in Vienna, Austria, With Improvised Apparatus.

Mentioned here to demonstrate that many varied methods may be utilized successfully in forced respiration, as we see at the present time. This was nearly two months after the author's first case. The original letter detailing the case from Professor Dr. Bohm, of the Allgemeines Krankenhaus, Vienna, is presented and dated October 21, 1888, in which he states that Dr. Länger, September 10 to 20, 1887, took six decigrammes (8.24 grs.), of morphia, with the usual effect. Artificial respiration was kept up four and a half hours, when it failed. Tracheotomy was made, a canula connected with a bellows and forced respiration was kept up for about four hours.

Second Case.

To make this report complete (referring to report of 1888) I communicated with Professor Bohm of the Vienna Hospital, August 14, 1888, requesting an account of the second case of forced respiration. November 11, 1888, I received from him the following account of the case, which, I am pleased to find, coincides with my views previously expressed regarding the value of forced respiration.

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* Canula exhibited. No. 3.

(Translation.)
Allgemeines Krankenhaus,
Vienna, Oct. 21, 1888.

Honored Confrere,

Having just returned to Vienna, I take great pleasure in answering your favor of August 14, 1888.

There has as yet been no authentic report published of the methods which were employed in rescuing Dr. Langer from death by morphia poisoning. I therefore give briefly the important points of the case.

Dr. Langer took, between the 10th and 12th of September, 1887 (nearly two months after Dr. Fell's first operation), six decigrammes (8.24 grains), of morphia dissolved in water. As his servants attempt to awaken him in the morning was fruitless, a physician from the hospital was immediately called in, and he diagnosed morphia narcotism.

The pulse was very small and intermittent, respiration had nearly ceased, the number about five per minute. The pupils were contracted to the size of a pin's head and insensible to light; corneal reflex absent; deep coma; briefly, a typical case of narcotism by morphia.

The attempts to save the patient's life were now made.

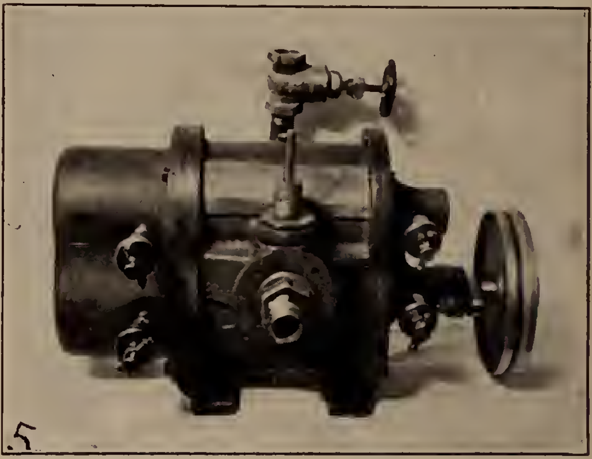
The stomach was emptied of its contents and rinsed out with black coffee. This was followed by injections of ether. Both of which were followed by apparent good results. After the respirations had increased to seven per minute, the patient was removed to the Royal Hospital, at which place artificial respiration was kept up from 8 A. M. until 12.30 P. M. As it was now apparent that artificial respiration was not sufficient to restore normal breathing, tracheotomy was performed. A canula connected with a bellows was introduced and "forced respiration" (kunstlich Luft eingeblason), kept up for three or four hours. At 5 P. M. the use of the bellows could be dispensed with and our attention entirely devoted to watching the natural respiration.

The attempts which the patient made to breathe for himself continued to increase in number and the next morning he became conscious. Our subsequent treatment consisted in simply caring for the wound and in elevating and enlivening the much depressed spirits of the patient.

Respectfully,
(Signed) Prof. Dr. Bohm.

Third Case.

The third case, my own, took place December 10, 1887. It demonstrated the great superiority of the forced respiration over the postural Sylvester method, in a crucial test of nearly 21 hours, with my newly devised apparatus for use on man. It is reported fully in the proceedings of this Society for 1888, and having taken place where newspaper reporters did not gain access, was not published in the public press, as were the first and fourth cases, and without the possibility of prevention by the author. Mr. Van Orden's life would not have been saved without the use of this new apparatus, but many persisted that I had done nothing new.



Blower run by electricity utilized by the author in his demonstration before the Chicago Medical Society, February 2, 1910. Published *Surgery, Gynecology and Obstetrics,* June, 1910. In that instance to show the efficiency of the air control valve, the air was passed from the blower through fifty feet of ordinary garden hose, but controlled so as to inflate the delicate artificial lungs to greatest nicety without injuring the delicate rubber membrane in the least. For emergency cases the small double bellows, the air valve and face mask are all that are needed.

Terse Description of New Apparatus for Forced Respiration From Proceedings of This Society for 1888.

This paper had a clear and complete description of the apparatus, which had been used 21 hours in my second, and over 24 hours in my third case, saving the life of patients in each instance under unusually desperate conditions. The simple description of the "Air-valve," the rubber lungs and the air warming portion of the apparatus took up two full pages of the proceedings of 1888, and is mentioned simply because a noted editor, twelve years later, in criticizing a short, hurriedly written paper on the "Archer Case" in which I had used this valve method successfully for over 78 hours, urged that I had never given a clear description of my apparatus. He could not have heard of the New York State Medical Society or Association. The terse description of 28 years ago is as follows: "The whole apparatus, therefore, consists of the bellows which may be ordinary ones with a rubber equalizer; a blower run by crank or electric motor power, or any method by which air may be steadily supplied," a rubber connecting tube, the air heating device (not shown in illustration 4), a second connecting tube, the air supply control valve (oxygen, anæsthetizing tubes applied later), and a third connecting tube before the træcheal tube is reached, and later the face mask, from which the third tube is readily detached or attached. For a very full description see proceedings for 1888, which in every essential feature is radically different from the old laboratory apparatus, and assured the success of my work.

Fourth Case of Forced Respiration, January 25, 1888.

The 1888 description was very complete, and is worth reading after 28 years have elapsed. The salient points of case are presented.

Julius Baere, of Lockport, was found January 25, 1888, unconscious at Continental Hotel, Buffalo. Reported dead in the afternoon papers, Coroner Kenny present; Undertaker Rodney with coffin, Dr. Hoddick reported condition upon my arrival as follows:

"Skin cold, cadaverous appearance, lips colorless, pallor of death, extremities cold, pulse imperceptible at wrist, eyes insensible to light, pupils contracted, but little blood in body. An empty two ounce vial of laudanum found; throat cut, trachea and anterior jugular vein severed, left arm incised with razor, exposing and cutting external coat of basilic vein; hemorrhage frightful." It might have been termed a sensational case.

Within a minute after entering room, the tracheotomy tube of new apparatus, was placed in the auto-incision in neck and I was beautifully respiring for the patient. The loss of blood was relieved by placing a canula in the nicely cut basilic vein and instilling six ounces of normal salt solution.

To make the story short, 24 hours of forced respiration saved this the most desperate of our cases so far. A preliminary report of these cases was given before the Fourth District Branch of this Association, May 8, 1888, at the Genesee Hotel, Buffalo, N. Y., when Messrs. Burns, Van Orden and Baere were so kind as to be present and reported themselves in the best of health.

So Far Only Adult Lives Saved.

Since the first case six months had elapsed and four adult lives had been saved by the new forced respiration method. Each case had passed beyond any glimpse of hope from the postural methods in vogue previous to July 23, 1887.

Following came a few cases where death ensued, but which demonstrated the superiority of the forced respiration over all previous methods, so that we could affirm that a great advance had been made in life saving methods. Its value in old age, and middle age had been proven, but so far time and opportunity had not presented a case of youth or infancy, and it was not known what could be accomplished without attempts being made in each special case. The latter came, however, in a case which seemed to offer insurmountable difficulties, and when looked back upon it seems that it might have been better not to have attempted to save the life of the 18-day-old infant, the little daughter of a wealthy resident of this city. The results, however, demonstrated the wisdom of making the effort and proved in a remarkable manner the wide applicability so far as all ages were concerned of forced respiration as a most valuable addition to our medical armamentarium.

Application to a Babe of Eighteen Days.

May 26, 1888, a deplorable accident occurred at the home of a wealthy resident of Delaware Avenue. One grain of morphia sulphate had been given at 12.45 P. M. This was equivalent to sixty does. At about 3 P. M. infant in convulsions. I arrived at the house at about 4.30 P. M., found the babe in a tub of warm water (head above water) deeply cyanosed. Operation of tracheotomy made and forced respiration begun about 5.10 P. M. And how was it done? After the difficult operation of reaching and exposing the little trachea, an interesting problem was before us. How were we to make connection between that less than ⅛ of an inch trachea, deeply imbedded in about ¾ of an inch of little plump neck tissue, and the ⅜ inch diameter of the respiratory apparatus canula?

Pieces of various sized catheters were obtained, a short piece of the smallest was inserted into the slit made in the trachea, short pieces of larger and larger ones were successfully built up, until the canula was reached and connected.

Arrangement of adult rubber lungs for demonstration and testing purposes. Utilized and devised by the author very early in his work, they were of great value in gauging the apparatus and for demonstrative purposes they respond instantly to the quickest movements of the air valve. The baby lungs are relatively smaller.

Then, how were we to gauge the time of the inspiration, to safely respire for the little one? In the 1888 proceedings of this Society was given a description of the rubber lungs, both size for adult and infant life (see Fig. 6). These rubber, so termed lungs closely simulate the natural lungs, instantly responsive to the insufflated air, enabled me to guage the apparatus, so as to not over inflate either the adult or infant lungs by simply timing the respirations to the approximate number of respirations per minute, utilized at various ages in auto-respiration.

TIMING OF RESPIRATIONS—THE INSPIRATION AND EXPIRATION.

The bellows were made of such capacity that three movements sufficed for time of inspiration, and three for expiration, the ordinary number in an adult per minute. One movement of bellows for inspiration and one for expiration gave 32 to 36 respirations per minute, about the number for an infant of 18 days. If proper intervals given, the size of trachea important in safeguarding insufflations. In the meantime what resulted? The cyanotic conditions passed away; reflexes re-established, natural respirations returned for a short time, and the bowels moved. But death supervened.

While the little babe did not live, the result of the tracheotomy and forced respiration presented a strong probability that had it been done earlier before the little heart had been weakened, paralyzed by the long continued asphyxia the final result might have been different.

INTRODUCTION OF FORCED RESPIRATION TO THE MEDICAL WORLD.

The (2d) operation see letter of Professor Dr. Bohm, of the Allgemeimes Krankenhaus, Vienna, spread the work before the profession of Austro-Hungary and Germany before 1884.[4]

INTRODUCTION INTO FRANCE.

From the transactions of this Society for 1891,[5] we quote: "At the Paris Exposition of 1888, one of my instruments was exhibited by Mr. George M. Baily, of Buffalo, N. Y., who (having witnessed the case of Julius Baere, Continental Hotel case, the 4th case), requested the privilege of taking it abroad. He had with him reprints of my articles published in the Transactions of the Association, which were distributed among some of the physicians and jurists interested officially in the Exposition." I presented this apparatus to the Academy of Medicine of Paris, and have the correspodence relating to the proceeding. A paper was presented before the Pan-American Medical Congress, Washington, D. C., September, 1893, which went before the English speaking peoples of the world. We thus see the greater portion of the civilized world was early acquainted with what had been accomplished and seeking to copy or improve the methods first utilized in America, in this city of Buffalo, N. Y., in 1887. The methods of the physiological laboratories were radically changed by it, but no credit is given the author for it.

FORCED RESPIRATION WITHOUT TRACHEOTOMY.

That tracheotomy offers the best means of respiring for a human being was demonstrated in my work many times, as it gives the greatest control and the nearest approach to the rhythmical action of tidal respiration, but it is objectionable in so many ways that if forced respiration can be carried on without it, a desirable step in progress that would bring the method into more general use is obtained.

The suggestion of the face mask was brought about through a patient taking two ounces of laudanum. The incision for tracheotomy was made, when it was noticed that the pupils were dilating. The operation was stopped, the tube of apparatus inserted into the mouth, and the nostrils closed and air forced into the lungs through the mouth at once overcoming the cyanosis. This was repeated several times until tracheotomy was completed and the life of patient saved. Dozens of face masks were tried out, until the one here exhibited, No. 7, was prepared with paraffine coated face, and proved most satisfactory and the face mask as applied to forced respiration came into general use.

First satisfactory face mask for forced respiration, was made with body of hard rubber, this not readily being adapted to the outline of the face, at the suggestion of the late Dr. Amos C. McAlpin, of Warren, Pa., dental wax was used which worked very well.

Dr. Allen A. Jones, of this city, details one of the first face mask cases of the author in history, as follows[6]:

"Then with the patient on a table, we instituted forced respiration by the face mask. The patient's lungs filled well without tracheotomy. We breathed steadily for her about one hour, she then moved her hands to her face and opened her eyes. Her cyanosis had entirely disappeared, and good oxygenization was manifest. The face mask was taken off, and the patient breathed several times for herself, in a long, slow, sighing fashion, but ceased entirely at the expiration of a few minutes." And then it states, "She would have died without the forced respiration; this occurred some three times, but after some four and one-half hours of face-masked work her life was saved." Dr. Herbert U. Williams, now Dean of the Medical Department of the University of Buffalo, remained all night with this patient and gave much valuable assistance. In one case the face mask was used satisfactorily for 18 hours by the author. Now we find it essentially as I used it 28 years ago, utilized in all or most of the automatic mechanical respirators of the day. This was Case No. 22.

Utilization of Oxygen Gas and Anæsthetic With the Forced Respiration.

The air valve at first had supplied atmospheric air only. By openings in the side of the valve, which could be connected with an oxygen cylinder or anæsthetic, using a Woolf bottle or anæsthetic vapor, a greater or less quantity of oxygen was passed into the lungs at each insufflation. It was the oxygen that added greatly to the value of the apparatus, and in the long extended cases assured success where otherwise certain failure would have resulted. The Elsberg-Tieman apparatus is a virtual copy with valuable additions of the arrangement I devised.

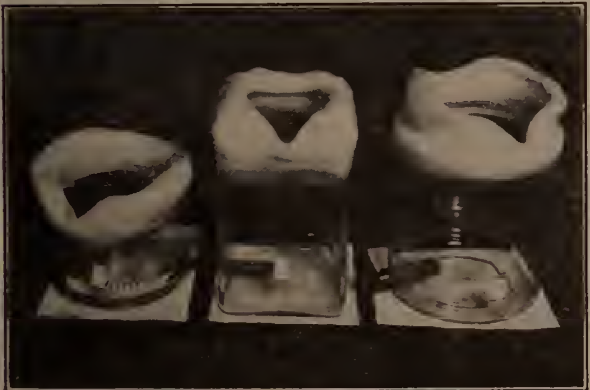


Fig. 8. Other types of face masks. Glass body with paraffine or wax, easily moulded face part which is admirable. Designed by the author.

The Two Longest Cases of Forced Respiration on Record.

This paper would be incomplete without a brief reference to two cases which occurred in the author's practice, constituting the two longest cases of mechanical respiration ever recorded.

Case of Dr. Henry J. Williams—Medical Student.[7]

He had injected, hypodermically, morphia to a large extent to overcome the effects of large doses of strychnia, taken to brace himself up for intense study (and work as a letter carrier) while undergoing a final examination for the degree of M.D. here in Buffalo.

After the attempt to save his life with face mask had failed, tracheotomy was made and forced respiration instituted at 9 A. M.

First Day, at 11 A. M., July 3, 1894.—After two hours of forced respiration, patient opened his eyes and asked "what is the matter?" and relapsed into unconsciousness. The case called for oxygen which was utilized forthwith throughout the case. It was found that the oxygen alone would have failed without the forced respiration. "During the whole of Tuesday afternoon and night, July 3, 1894 (the first day and night), the apparatus was in continual operation."

Second Day, Wednesday, at 11 A. M.—I removed the tracheotomy tube, expecting the oxygen to supply the needs of patient, and left for a vacation. Drs. Earl Lothrop and R. R. Taylor in charge. The oxygen gave out and I was recalled and supplied more, and again started on my vacation, but was recalled the second time and found the patient cyanotic, respiring with difficulty, with a considerable relapse. I replaced tracheotomy tube, and at 2 P. M., Wednesday, renewed the fight with continuous forced respiration until Thursday, July 5th, 9 A. M. On this occasion his temperature was at the start 104.5 F. At the close 101 F. The mechanical respiration alone was the factor which won the fight, with the instantaneous control of respirations with the air valve.

Third Day, Thursday.—Forced respiration unwisely discontinued from 9 A. M. until 7.30 P. M., the patient relapsed from semi-conscious into an unconscious state, respiration shallow, cyanotic and the case appeared more hopeless than at any time previous. The doctors ridiculed the idea of attempting to save the patient. Hypodermic treatment of brandy, caffeine with rectal ailmentation were heroically utilized. At 7.30 P. M. forced respiration again under way.

Fourth Day, Friday.—Toward the middle of the afternoon of Friday, the fourth day and third night, we again gave the patient a chance to breath for himself. He failed after a few minutes and begged for the apparatus, and it had to be utilized until 10 A. M. Friday before it could be relinquished. Dr. Williams was employed subsequently by Col. Wm. C. Gorgas on the Canal Zone and I have information from Governor Goethels that he is still on the isthmus at Colon Canal Zone. Another case yet more remarkable took place December 5, 1898, in this city.

Case of Raymond Archer, Age 16.[8]

He had taken as nearly as could be determined 33 grains of morphine following dinner, 6 P. M., Monday, December 4, 1898. It was apparently all absorbed on a full stomach forced respiration per tracheotomy kept up, and at noon of Tuesday following, or nine hours and 20 minutes, no response, not even a reflex of any kind had been observed. A recently opened bottle of morphia was found in the waste basket of the patient's bedroom, corked tightly. Dr. Carlton C. Fredericks, an endeared former member of this Society took it to his office and reported that 33 grains had been taken from it. (Bottle exhibited.) Oxygen gas was utilized, sustentation by nutrimental and stimulating enemata, followed by catheterization and hypodermics of brandy and water and citrate of caffeine were systematically followed. Wednesday, the 7th, 4 A. M., after more than 25 hours of forced respiration a ray of hope presented in the first reflex movement of the toe of left foot on being tickled. At 7 A. M. after 28 hours patient recognized his father and attempted to say "Papa," but quickly relapsed into unconsciousness.

New Method in Drowning.[8]

A tonic convulsion, followed by ejectment of contents of the stomach, water placed there by attempting to wash out contents, filled the nose, mouth and lungs, instantly stopping the forced respiration. I instituted a new method of permitting the fluid from the lungs to gravitate from the body as we desired to renew the forced respiration without turning the body, and raised the body and legs on a board at an angle of 40 degrees so that the water gravitated readily out of the lungs through the nose, mouth and tracheotomy tube, and the respiratory work was continued uninterruptedly until Thursday afternoon at 5 o'clock, or after 62 or 63 hours of virtually constant forced respiration. At this time consciousness returned, and our young man recognized his father. Dr. Fredericks said, "The case was the nearest to a resusitation from the dead he had ever witnessed." Dr. Wm. H. Slacer and Prof. Wm. H. Gregory witnessed the operation for a time.

The senior students of the University of Buffalo, who assisted me and have been practicing medicine and surgery for many years were Drs. J. A. Reister, R. E. De Cue, W. T. Owens, R. L. Strong, J. P. Barr, and Guy E. Ridgeway.

The patient was given every chance to respire for himself but time and again failed, and requested the mechanical work, until at 8 o'clock A. M., Friday, the 9th of December, or for over 78 or 80 hours, without including the time of the use of face mask, constituting then as now, the longest period in the history of medicine or surgery, in which a human being has been kept alive, and his life saved, by artificial, mechanical or forced respiration.

With all the pulmotors, lung-motors, intratrachæl intubation, or any of the other wonderfully complicated mechanical methods, so deftly prepared by the great army of splendid inventors, since this case of sixteen years ago, have results comparable to this been accomplished?

I present the bottle which was found in young Mr. Archer's room just as it was received by me on the occasion of the operation. This is the only evidence, but it seems to me, the strongest, of the enormous dose he took and retained.

Practical Surgery of the Thorax, a Result of Forced Respiration.[9]

There is no question about the surgery of the thorax being a practical measure with forced respiration, per tracheotomy. It would prevent collapse of the lungs and permit any intrathoracic operation reasonably possible. The unexplainable opposition to tracheotomy prevented this from being carried out, nevertheless, forced respiration by the intubation tube of the late lamented Dr. John O'Dwyer, of this Society, utilized by Dr. F. W. Parham, of New Orleans, gave us our first systematic operation on the thoracic cavity, when a sarcomatous growth was successfully removed.[9]

Negative, Intratrachæl and Negato-Positive Respiration.

Since 1887 the real advances in the principles of mechanical respiration, have been the so-termed "Negative Respiration" of Prof. E. F. Sauerbruch,[10] and the "Intratrachæl Insufflation Method" of Drs. Meltzer and Auer.[11] The latter has undoubtedly given the greatest practical impetus to thoracic surgery of any method since forced respiration was first demonstrated in 1887. As a life-saving method it will probably not be so frequently used as the more simply applied face mask cases now utilized, and first instituted by the author.

The interesting arrangement and mechanism of the combined differential chamber of Professor Willy Meyer, at the German Hospital, New York, should be a distinct advantage to the negative method alone.[12]

A Personal Experience.

At the 1912 New York City meeting of the Clinical Congress of Surgeons, Dr. Meyer had described his combined cabinet to quite a large audience, some (sixty) members of the congress being in the large negative chamber at one time. It had so pleased me, that at the close of his remarks in an impromptu manner, without hesitation, I gave him great praise for the wonderful mechanism which he with his brother, had prepared and demonstrated, saying, "I am Dr. Fell." At that he quickly rejoined, "Oh, Dr. Fell, Gentlemen, this is the man who started the whole thing." I was overjoyed and can never forget his kind words.

EARLY HISTORY OF MECHANICAL RESPIRATION PRIOR TO THE POSTURAL METHOD.

Under the head of "Historical Considerations," attention was called to the difficulty of determining facts regarding the early history of mechanical respiration. In the year 1909 there appeared a series of papers in the *London Lancet,* by Prof. Arthur Keith,of London, England.[13]

A review of these admirable lectures, indicates that it would have been difficult for any one to have provided a satisfactory and historically correct version of the earliest facts associated with artificial respiration, without reference to the records of the Royal Humane Society of London. Professor Keith had access to these records, in many instances for the first time. From his research we learn that bellows of various forms, ranging in capacity from 500 cubic centimeters to those of Monroe, of Edinburg, of 1500 c.c. so fitted as to insufflate as well as to aspirate the lungs of air had been built. The celebrated John Hunter had also prepared bellows. "Leroy" (de Etoiles) of France was an advocate of the bellows for a time, but owing to experiments found it possible to kill an animal by suddenly inflating its lungs. From a report of his paper presented to the Society by Mr. John Dalrymple, "The bellows fell into disgrace, and in 1837 disappeared from the list of methods recommended by the Society." The late Professor Horatio C. Wood, in his address before the International Medical Congress, held in Berlin, Germany, 1890, stated that he failed to find that Hunter or any others had utilized their bellows practically in the saving of human life. At this early period of study of this subject, he gave me credit for being the first one to use forced respiration in opium poisoning, with a full appreciation of its value and benefits.

While there are conflicting statements, it must be admitted that all investigations even that of Professor Mates, [14], [15] of New Orleans, La., show that mechanical respiration was a signal failure in the days preceding the introduction of "postural methods," and we must conclude with a reasonably positive assurance, not alone from these and the study of Dr. Keith's most valuable paper, but also from the special convincing proof of the first series of remarkable results at the hands of the author in 1887 and 1888, and following years, that this was true. Had similar results ever been obtained earlier in history, the world would certainly not have allowed them to have been relegated to oblivion.

The fact is now so well attested, that we may say with all thankfulness that the first time artificial forced mechanical respiration was systematically and successfully applied to human beings with a saving of human life was in the city of Buffalo, N. Y., in the year 1887.

THE POSITIVE RESPIRATORY APPLIANCES MOST IN USE TODAY.

The pulmotor was prepared in Germany. The insufflation and deflation of the lungs are produced by a high pressure oxygen cylinder, with necessary mechanism, carried through a tube to a face mask of ingenious contruction. It is short lived, but can be improved to be of great value on account of its automatic feature.

The "lung-motor" is an American device prepared originally by Professor Poe, of Norfolk, Va., whom, in 1908, I had the pleasure of meeting there. He was very much interested in my work; I supplied him with my various reprints, and cautioned him about the exhaust feature of his apparatus. Many lives have been saved by the lung-motor, and as now utilized it is a great advance upon his model They belong to the positive system of mechanical respirators, and are subject to improvement.

The failures of the early attempts at mechanical respiration were undoubtedly due to the bellows being prepared to aspirate as well as to insufflate the lungs and to the want of knowledge of physiology of those days. All evidences point to the fact that aspiration has produced serious lesions of the bronchial tubules. Professor Rudolph Matas in his investigative work with his duplex cylinder scheme in later days has proven conclusively the danger of such attempts.[14], [15]

AN ESTIMATE OF WHAT MECHANICAL RESPIRATION HAS ACCOMPLISHED.

One of the representatives of a noted mechanical method of life saving, stated that to 1912 about forty thousand lives had been saved. It is not unreasonable, after investigation, if such is the case, to assume that from forty to fifty thousand lives have been saved by mechanical respiration since the first work of the author in 1887. Whether this be so or not, the work instituted at that time must increase by great bounds as the ages fall until many hundreds of thousand of lives have been saved, that would certainly have been sacrificed by the old methods.

This is positive progress beyond question.

MECHANICAL REPIRATION YET IN ITS INFANCY.

Never can I forget the feeling that overcame me when on that, to me, memorable day of July 23, 1887, I witnessed the transition of

Mr. Burns from almost death to life. At that time no one could know what result would ensue, but that the man would live seemed to possess my mind right to the climax of that seemingly hopeless case. And in all of those first four or five remarkable cases my faith in the outcome never failed. I knew that if the world was slow in accepting my views, that so substantially was the foundation laid, so certain the great results that would radiate from that first operation of 1887, that the time would come when this work would be crowned with the just appreciation of its value to mankind.

As shown previously, it was but a short time following the operation of the author in 1887, before his work was successfully utilized (Austria-Hungary and Germany) in saving life in Vienna. Paris was supplied with an apparatus by the author and the first publications of his work in reprints of the N. Y. State Medical Association. A paper before the Pan-American Medical Congress, 1893, Washington, D. C., acquainted the prominent medical representatives from our sister continent, South America, with the detail of his work, so that it could be taken up and intelligently followed. Inventors here there and everywhere were trying to modify and improve the apparatus until we have untold devices, simple and most complex, negative and positive, utilized for resuscitative purposes and lung surgery. No lung surgery was possible, rather than probable, without the author's first demonstrations.

It was not so much in the instrumentation as in the demonstration of the great fact that mechanical respiration could be conducted for days and nights with perfect safety to the patient, without any deleterious effect on the lungs, that the work of the author was most valuable in propogating this new and far reaching method of life saving. The hospitals of the great cities of our land were busy, and while the progress has not been as great as it should have been, very many lives have been saved. From the records of the instrument known as the "pulmotor" and the "lung-motor," which have been in use during the last few years, quite definite figures have been secured so that an approximate estimate may be obtained. After putting together the figures so far obtainable from the factors above mentioned, it may be estimated that at least fifty thousand human lives have been saved since the operation of the author in 1887. And this work will be added to in increasing ratio as the years come around.

A fair record unquestionably for an innovation upon established methods and absolute rending of the set proceedures of over thirty years' standing.

THE MEDICAL PROFESSION AND THE PUBLIC GENERALLY SHOULD BE COGNIZANT OF THE FACT THAT THE MECHANICAL METHOD IS FAR SUPERIOR TO THE POSTURAL IN RESUSCITATIVE WORK.

It is the province of the medical schools to spread the knowledge of the value of mechanical respiration. It has not been done in some of the prominent schools to my knowledge, as I have met graduates two or three years back who stated that the subject had not been referred to by their teachers.

The public schools should have a hand in educating the masses to resort to mechanical respiration, when needed, with simple, effective and reasonably priced instruments, which can readily be prepared and kept on hand at set centers for emergency cases.

THE INSTRUMENTATION OF MECHANICAL RESPIRATION FIRST UTILIZED BY THE AUTHOR.

Following the saving of his first life by the vivisection laboratory apparatus of *his own devising,* differing in many practical features from the old common bellows established method of his predecessors, he made practically an entirely different combination which was used with signal success in his second, third and subsequent cases. The plan was as follows:

An ordinary tracheotomy tube was inserted in the trachea, the lower operation being usually selected. It had a detachable short rubber tube connection with a newly devised air control valve, built on the cornet piston plan so that the respirations were controlled by simply pushing the head of the piston down a half inch for the inspiration and releasing it for the expiration. No simpler or more effective means have been devised to control the timing of the respirations. With a simple electrical device it can be made to work automatically, and the same apparatus breathe for a new born infant or an adult of any age, for from a few minutes to three or four days and nights, or even longer, the longest continuous case (author's) being over seventy-eight hours continuous respiration. This air valve was connected with the double bellows which supplied a continuous stream of air, mingled with an anæsthetic or oxygen as required, all under control of the piston and other control valves for oxygen and anæsthetic. The oxygen tube of the air valve was added in 1888 and 1889. The anæsthetic tube or air valve, with the Woolf three-necked bottle in 1908, and with an electric motor and blower demonstrated before the Chicago Medical Society in February, 1910. The face mask in this connection was devised and practically used first by the author in one of his early cases, which was duly recorded in its proper place in his published papers.

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The following letter received August 18, 1915, is self-explanatory, I have not had the pleasure of meeting Dr. McMichael, from whom I requested an account of the method through which the first case of Forced Respiration was publically reported. G. E. F.

My Dear Doctor Fell:

It gives me great pleasure to send you the enclosed statement regarding the operation on Patrick Burns, which was performed July 23, 1887. I recall perfectly the incident referred to even to the details as to how I obtained information about it. I was just coming out of my home, when I saw my cousin George driving up to your house at a gallop and coming out again with some instruments in his hands. Scenting news I ran across the street and jumped into the buggy and drove with him to the house on Morgan Street.

It will interest you to know that on one occasion in 1899, I was the guest of Dr. L. H. French, of Washington, D. C. He gave a dinner in my honor to some medical friends in Washington, and as it happened to be the regular meeting night of the Washington Medical Society, he invited the society to hold the meeting at his house. There were present on that occasion, Surgeon General Van Ruypen, of the Navy; Surgeon General Sternberg, of the Army, and Surgeon General Wyman, of the U. S. Marine Hospital Service, and also General Moore, a former Surgeon General of the Army, and a number of other distinguished guests. After dinner, to my great surprise the first paper of the evening was a paper on "Dr. Fell's Method of Forced Respiration," and you may imagine that interest was greatly added to the paper when during the discussion I stated to those present that I was present the the first time the operation was performed upon a human subject and gave the details of your operation upon Patrick Burns.

I am very proud of having been present and at having witnessed the operation which has led to the saving of so many human lives, and I am glad to have part in giving credit to the man who led the way. If I can be of further assistance to you in this matter please command me.

Very truly yours,

(Signed) O. W. McMichael.

Statement of Dr. O. W. McMichael.

Chicago, Ill., August 16, 1915.

To Whom It May Concern:

The undersigned, a practicing physician of 25 East Washington Street, Chicago, Ill., twenty-eight years ago, or specifically July 23, 1887, was on the reportorial staff of the *Buffalo Evening News*, Edward H. Butler, Editor and Proprietor.

That on the date stated I heard my cousin, Mr. George H. McMichael, then a medical student, say that Dr. Fell was to make an operation in a case where he had to incise the throat of his patient. Thinking the case worth reporting I went to the house on Morgan Street while the operation was underway, and wrote the article which was published in the *News*, first edition, regarding the case, and which was the first published report of the case, I believe.

Dr. George Edward Fell, who performed the operation, and whom I knew well, as he lived at 72 Niagara Street, directly opposite my house, had nothing to do with the publication of the article in any manner, as I had no direct or indirect conversation with him pertaining to it, and obtained no information from any one which he authorized in any manner.

Mr. George H. McMichael, mentioned above, is now a practicing physician of 356 Maryland Street, Buffalo, N. Y., and assisted Dr. Fell in the operation.

(Signed) O. W. McMichael, M.D.

Discussion.

Dr. George W. Crile, Cleveland, Ohio:—I think we all feel that medical science, like medical art, like industry, government, politics and religion, requires some one to start a new path.

We have heard Dr. Fell tell us what he has gone through in his experiments in the past. There is no use at this time for anybody to discuss the principles of artificial respiration. The principles laid down by Dr. Fell long ago, all accept, and there is no room for discussing them because they are settled. After resuscitating animals and human beings, and having had a good deal to do with laboratories, from my point of view I can imagine the feelings of Dr. Fell when he made a new departure in the early days and laid the foundation of his new principle, and what a thrill and pleasure and satisfaction he had when he saved his first human being, and later was surprised to find that everybody in the profession did not adopt his method. No matter how successful a method may be, a new thing is followed cautiously. Fixation of the brain takes hold of some men to such a degree that it is difficult for them to change. It is difficult for them to take in new ideas, but Dr. Fell has had the pleasure which a great many men never had, of seeing his ideas and his principles live, even though they are not adopted by the world at large.

The medical profession owes a debt of gratitude to Dr. Fell and to his work. When he made a new departure he had the courage to stick to it. Many of us have good ideas but we do not stick to them as Dr. Fell stuck to his.

I may sum up what I believe is pertinent to this discussion by saying that I know of Dr. Fell's work, I know his principles, and I know him. What Fulton was to steam navigation; what McCormick was to the mechanical work of reaping, and what Morse was to the telegraph, so is Dr. Fell to the question of artificial respiration, and like Morse, Fulton, Howe, or any of the great inventors, he has been a path maker. If anybody can improve upon the methods of these men or work out different principles, such men would feel that the work they have accomplished was not in vain.

Dr. Albert H. Briggs, Buffalo:—This paper is really a history of what has been accomplished in artificial respiration and will prove in the years to come very valuable after Dr. Fell has gone to his reward.

It has been my fortune to know Dr. Fell for many years. Some of his co-woorkers knew his as an ex-United States engineer. I knew him when he was an engineer, and employed by the United States Government. A few remember him as a professor of physiology in the Niagara University. Most of you younger men know him as a clinician. Dr. Fell has grown old and his work, like mine, is pretty nearly through, but he is not as strong and healthy as I am. I want to say that he has burned up his very life in this work of his. He has lived, taught, dreamed and worked at it and as you see from the trend of this paper he will receive his reward or credit for it. He is entitled to it.

My attention was called years ago to an editorial that appeared in one of the Buffalo morning papers, written by one of our most brilliant writers of that day. It was written by George M. Matthews for the *Buffalo Morning Express,* January 27, 1888, and it is entitled, "He Shall Not Labor in Vain." This editorial shows you what an intelligent layman thought at that time. Dr. Fell saved a man's life who had tried to commit suicide by taking laudanum and cutting his throat. Dr. Fell saw that man and brought him back to life. The laity were appalled at the wonderful result the doctor got. The case was reported in great detail in the newspapers, consequently the public were vitally interested in all this work of Dr. Fell.

Dr. Sydney A. Dunham, Buffalo:—I have been associated with Dr. Fell in some of these cases and my work was to pump the bellows for an hour at a time, and sometimes we had six or seven medical students helping us, working in relays. We had to work on one case for three days. It seemed like drudgery, but a life saved showed it was worth while.

I want to emphasize the point that Dr. Fell was the originator of mechanical forced respiration or in forcing air through the respiratory tract to keep people alive in cases of respiratory paralysis. It is a great argument in favor of vivisection because his work came from the vivisection room.

When a man labors in a self-sacrificing manner and has worked so hard to save human life as Dr. Fell has done, it seems to me that there should be some way of rewarding him financially. I wish this Society could take some action to honor or reward Dr. Fell for his original work in mechanical forced respiration. In that way, it might be more substantial for him in his declining years.

Dr. George E. Fell, Buffalo (closing):—I do not know what to say after hearing the pleasant words of Dr. Crile and the words of my associates, but I think what troubles I have gone through have been amply repaid in the way of appreciation of my work by my colleagues.

LEGISLATIVE NOTES.

The Committee on Legislation herewith presents the lists of members of the Senate and Assembly for the year 1916. Members of the Society can refer to this list at any time that it may seen advisable to write to their Assemblymen or Senators in regard to legislative matters and all are requested to look it over so that if among those represented there are any men known to them personally they can write them, if requested by the Committee on Legislation to assist or oppose any bills before the Legislature.

SENATE.

1. G. L. Thompson, R., Kings Park.
2. *B. M. Patten, D., 151 Elm, L. I. City.

Kings.

3. *T. H. Cullen, D., 256 President.
4. C. C. Lockwood, R., 954 Greene Avenue.
5. *W. J. Heffernan, D., 598 Fourth Avenue.
6. *W. B. Carswell, D., 121 St. Marks Avenue.
7. *D. J. Carroll, D., 135 N. Third.
8. A. W. Burlingame, Jr., R., 391 Fulton.
9. R. R. Lawson, R., 24 Woodbine.
10. A. J. Gilchrist, R., 249 Crescent.

New York.

11. *C. D. Sullivan, D., 51 Chambers.
12. H. W. Doll, D., 49 Third Avenue.
13. J. J. Walker, D., 6 St. Lukes Place.
14. *J. A. Foley, D., 66 Broadway.
15. *J. J. Boylan, D., 418 W. 51st.
16. *R. F. Wagner, D., 244 East 86th.
17. O. L. Mills, R., 9 E. 84th.
18. W. M. Bennett, R., 15 William.
19. *G. W. Simpson, D., 468 W. 144th.
20. I. I. Joseph, D., 1421 Madison Avenue.
21. J. J. Dunnigan, D., 1861 Holland Avenue.
22. J. A. Hamilton, D., 897 Crotona Park, North.

State.

23. G. Cromwell, R., Dongan Hills, Staten Island.
24. G. A. Slater, R., Port Chester.
25. *J. D. Stivers, R., Middletown.
26. *J. E. Towner, R., Towners.
27. C. W. Walton, R., Kingston.
28. *H. M. Sage, R., Menands.
29. G. B. Wellington, R., Troy.
30. *G. H. Whitney, R., Mechanicville.
31. A. L. Norton, R., Cobleskill.
32. F. W. Cristman, R., Herkimer.
33. *J. A. Emerson, R., Warrensburg.
34. N. M. Marshall, R., Malone.
35. *E. R. Brown, R., Watertown.
36. C. W. Wicks, R., Sanquoit.
37. S. A. Jones, R., Norwich.
38. *J. H. Walters, R., 315½ Genesee St., Syracuse.
39. W. H. Hill, R., Lestershire.
40. *C. J. Hewitt, R., Locke.
41. M. S. Halliday, R., Ithaca.
42. T. B. Wilson, R., Hall.
43. C. D. Newton, R., Geneseo.
44. A. D. Sanders, R., Stafford.
45. *G. F. Argetsinger, R., Rochester.
46. J. B. Mullan, R., Rochester.
47. *G. F. Thompson, R., Middleport.
48. C. T. Horton, R., 905 D. S. Morgan Bldg., Buffalo.
49. *S. J. Ramsperger, D., 232 Elmslie Street, Buffalo.
50. W. P. Greiner, D., 1037 Walden Avenue, Buffalo.
51. G. E. Spring, R., Franklinville.

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*Re-elected.

ASSEMBLY.

Albany.

1. C. F. Welsh, R., Albany.
2. *J. G. Malone, R., Albany.
3. *W. C. Baxter, R., Watervliet.

Allegany.

W. Duke, Jr., R., Wellsville.

Bronx.

32 N. Y. *W. S. Evans, D., 744 Beck Street.
33 N. Y. *E. H. Miller, D., 601 Eagle Avenue.
34 N. Y. *M. M. Fertig, D., 1556 Minford Place.
35 N. Y. *J. M. Callahan, D., 1037 Ogden Avenue.

Broome.

*S. P. Quick, R., Windsor.

Cattaraugus.

*D. H. Ames, R., Franklinville.

Cayuga.

*W. F. Whitman, R., Venice Center.

Chautauqua.

1. L. L. Fancher, R., Jamestown.
2. J. A. McGinnies, R., Ripley.

Chemung.

R. P. Bush, D., Horseheads.

Chenango.

*B. Lord, R., Afton.

Clinton.

W. R. Weaver, R., Peru.

Columbia.

*W. W. Chace, R., Hudson.

Cortland.

*G. H. Wiltsie, R., Cortland.

Delaware.

*E. A. Mackey, R., Franklin.

Dutchess.

1. *J. C. Allen, R., Clinton Corners.
2. F. L. Gardner, R., Poughkeepsie.

Erie.

1. Alex. Taylor, R., 115 Franklin Street, Buffalo.
2. *R. Graves, R., 68 Manchester Place, Buffalo.
3. N. J. Miller, R., 12 Cayuga Street, Buffalo.
4. *J. M. Mead, D., 137 Gold Street, Buffalo.
5. J. A. Lynch, D., 694 So. Division Street, Buffalo.
6. *P. C. Jezewski, R., 173 Stanislaus Street, Buffalo.
7. J. J. Rolmhild, R., 31 Burch Avenue, Buffalo.
8. *L. W. Gibbs, R., 15 Depew Avenue, Buffalo.
9. W. W. Cheney, R., Eden.

Essex.

*R. T. Kenyon, R., Ausable Forks.

Franklin.

W. T. Thayer, R., Chateaugay.

Fulton-Hamilton.

B. Z. Kasson, R., Gloversville.

Genesee.

*L. H. Wells, R., Pavilion.

Greene.

*G. H. Chase, R., Jewett.

Herkimer.

*S. C. Colbridge, R., Herkimer.

Jefferson.

1. *H. E. Machold, R., Ellisburg.
2. *W. S. Augsbury, R., Antwerp.

Kings.

1. *R. H. McQuistion, R., 144 Montague.
2. *W. J. Gillen, D., 12 Vanderbilt Avenue.
3. *F. J. Taylor, D., 50 Van Dyke Street.
4. *P. A. McArdle, D., 151 Hewes Street.
5. *F. G. Milligan, Jr., R., 528 Decatur Street.
6. *N. D. Shapiro, R., 173 Floyd Street.
7. *D. F. Farrell, D., 378 17th Street.
8. *J. J. McKeon, D., 413 Smith Street.
9. *F. S. Burr, D., 330 80th Street.
10. *F. M. Ahearn, R., 425 Sterling Place.
11. *G. R. Brennan, R., 1138 Pacific Street.
12. *W. T. Simpson, R., 523 Sixth Street.
13. *H. Kramer, D., 18 Bushwick Avenue.
14. *J. P. LaFrenz, D., 65 Java Street.
15. J. F. Twomey, D., 151 Java Street.
16. Chas. Joseph, D. P., 198 Bay 17th Street.
17. *F. A. Wells, R., 215 Montague Street.
18. F. B. Maerkle, R., 161 Lefferts Avenue.
19. *W. A. Bacher, D., 12 Suydam Street.
20. *A. C. Flamman, R., 1135 Lafayette Avenue.
21. *I. Mendelsohn, D., 419 So. Fifth Street.
22. *C. H. Duff, R., 1397 Madison Street.
23. A. I. Shiplocoff, Soc., 1589 Lincoln Place.

Lewis.

*H. L. Grant, R., Copenhagen.

Livingston.

G. F. Wheelock, R., Leicester.

Madison.

*M. E. Tallett, R., De Ruyter.

Monroe.

1. *J. A. Harris, R., Penfield.
2. *S. L. Adler, R., Rochester.
3. *J. R. Powers, R., Rochester.
4. *F. Dobson, R., Charlotte.
5. *F. W. Judson, R., Gates.

Montgomery.

*E. C. Davis, R., Fonda.

Nassau.

*T. A. McWhinney, R., Lawrence.

New York.

1. *J. J. Ryan, D., 189 Greenwich Street.
2. P. J. Hamill, D., 262 William Street.
3. C. B. F. Barra, D., 57 Kenmare Street.
4. *H. S. Schimmel, D., 18 Columbia Street.
5. *M. McDonald, D., 344 W. 14th Street.
6. *N. D. Perlman, R., 314 E. Fourth Street.
7. *P. P. McElligott, D., 360 W. 21st Street.
8. A. Goodman, D., 33 Essex Street.
9. *C. D. Donohue, D., 408 W. 43d Street.
10. Leon Bleecker, R., 31 E. First Street.
11. J. F. Mahoney, D., 682 10th Avenue.
12. *J. D. Kelly, D., 223 E. 17th Street.
13. *J. C. Campbell, D., 827 10th Avenue.
14. *R. L. Tudor, D., 159 Lexington Avenue.
15. *A. Ellenbogen, R., 137 W. 86th Street.
16. *M. G. McCue, D., 734 Third Avenue.
17. Vincent Gilroy, D., 57 W. 92d Street.
18. *M. Goldberg, D., 222 E. 72d Street.
19. P. M. Armstrong, D., 548 Riverside Drive.
20. *F. Aranow, D., 1185 Lexington Avenue.
21. T. T. Reilley, D., 225 W. 137th Street.
22. *M. Bloch, D., 407 E. 88th Street.
23. *D. C. Oliver, D., 520 W. 157th Street.
24. *O. M. Kiernan, D., 163 E. 89th Street.
25. Robt. McC. Marsh, R., 45 W. 11th Street.
26. M. Levy, D., 19 E. 119th Street.
27. H. Nickerson, R., 375 Park Avenue.
28. *S. A. Cotillo, D., 273 Pleasant Avenue.
29. A. D. Bell, R., 54 E. 77th Street.
30. T. F. Gould, D., 158 E. 127th Street.
31. Jacob Goldstein, D., 44 W. 114th Street.

Niagara.

1. *W. Bewley, R., Lockport.
2. *A. N. Parker, R., Niagara Falls.

Oneida.

1. J. J. Hess, D., Utica.
2. L. M. Martin, R., Clinton.
3. G. T. Davis, R., Rome.

Onondaga.

1. *E. A. Arnts, R., 628 No. Noseti Street, Syracuse.
2. *J. L. Kincaid, R., Robineau Rd., Syracuse.
3. Geo. Fearon, R., 511 Van Buren Street, Syracuse.

Ontario.

*H. E. Wheeler, R., East Bloomfield.

Orange.

1. W. T. Snider, R., Montgomery.
2. C. A. Mead, R., Middletown.

Orleans.

*A. A. Comstock, R., Waterport.

Oswego.

*T. C. Sweet, R., Phœnix.

Otsego.

*A. J. Bloomfield, R., Richfield Springs.

Putnam.

*H. Fish, Jr., P., Garrison.

Queens.

1. *N. Nehrbauer, Jr., D., Astoria.
2. *P. J. McGarry, D., L. I. City.
3. *W. H. O'Hare, D., Glendale.
4. *G. E. Polhemus, D., Jamaica.

Rensselaer.

1. *J. F. Shannon, D., Troy.
2. Arthur Cowee, R., Berlin.

Richmond.

*S. D. Stephens, D., New Brighton.

Rockland.

W. A. Serven, R., Pearl River.

St. Lawrence.

1. *F. L. Seaker, R., Gouverneur.
2. *E. A. Everett, R., Potsdam.

Saratoga.

*G. T. Seelye, R., Burnt Hill.

Schenectady.

*W. S. McNab, R., Schenectady.

Schoharie.

*E. A. Dox, D., Richmondville.

Schuyler.

H. J. Mitchell, R., Watkins.

Seneca.

*W. J. Maher, R., Seneca Falls.

Steuben.

1. *R. B. Oldfield, R., Bath.
2. *R. M. Prangen, R., Hornell.

Suffolk.

1. *DeW. C. Talmage, R., Easthampton.
2. *H. A. Murphy, R., Huntington.

Sullivan.

W. B. Voorhees, R., Roscoe.

Tioga.

D. P. Witter, R., Berkshire.

Tompkins.

Casper Fenner, R., Lansing.

Ulster.

1. *H. R. DeWitt, R., Kingston.
2. *A. P. Lefevre, R., New Paltz.

Warren.

*H. E. H. Brereton, R., Lake George.

Washington.

*C. O. Pratt, R., Cambridge.

Wayne.

*R. A. Wilson, R., Savannah.

Westchester.

1. *G. Blakely, R., Yonkers.
2. *W. S. Coffey, R., Mt. Vernon.
3. *W. W. Law, Jr., R., Briarcliff Manor.
4. *F. D. Hopkins, R., White Plains.

Wyoming.

*J. Knight, R., Arcade.

Yates.

H. S. Fullager, R., Penn Yan.

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* Re-elected.

* Re-elected.

Medical Society of the State of New York

To the Members of the Medical Society of the State of New York:

There has been found in Albany, a number of duplicate copies of the Transactions of the Medical Society of the State of New York. If any member desires a set or desires the copies for any particular year, if he will send notice to 17 West 43d Street, New York City, upon payment of the express and packing such volumes as he desires will be sent to him until the supply is exhausted.

James F. Rooney,
Wisner R. Townsend,
Committee of Council on Disposition of Transactions.

January, 1916.

MEETING OF THE COUNCIL.

A regular meeting of the Council of the Medical Society of the State of New York was held at the State Society rooms, 17 West 43d Street, December 10, 1915, at 10 A. M. Dr. W. Stanton Gleason, President, in the chair. Dr. Wisner R. Townsend, Secretary.

The meeting was called to order by the President and on roll call the following answered to their names: Drs. W. Stanton Gleason, Montgomery E. Leary, Henry L. Winter, Thomas H. McKee, Wisner R. Townsend, Alexander Lambert, James F. Rooney, Albert W. Ferris, Thomas J. Harris, Joshua M. Van Cott, Frank Van Fleet, James E. Sadlier, James S. Cooley, Julius B. Ransom, William D. Garlock, William T. Shanahan, Carl G. Leo-Wolf, A. E. Sellenings.

A quorum being present, Dr. Gleason announced the meeting open for business.

As the minutes of the last meeting had been approved they were accepted as printed in the New York State Journal of Medicine for June, 1915, Vol. 15, No. 6, page 247.

Moved, seconded and carried that the amendments to the By-Laws of the Medical Society of the County of New York, be approved as follows:

Amend Chapter I, Article 4, last line of Article by striking out the words "and affiliations."

Amended Article to read as follows:

"No applicant shall be elected to membership if his diploma or license be of a sectarian character, unless the applicant declares in writing his or her abnegation of sectarian titles."

Dr. James M. Vander Veer was nominated by Dr. Rooney as a member of the Committee on Legislation.

Moved, seconded and carried that the nomination be approved.

Dr. Van Fleet, Chairman of the Committee on Medical Research, presented the following names for approval as members of the committee: First District, Henry Lyle Winter, Cornwall; S. W. S. Toms, Nyack; William M. Dunning and James Ewing, New York City; Third District, Sherwood V. Whitbeck, Hudson; Sixth District, Luzerne Coville, Ithaca; Seventh District, Joseph P. Creveling, Auburn.

Moved, seconded and carried that they be approved.

The committee appointed at the last meeting of the Council to propose amendments to the By-Laws of the Society in accordance with recommendations made in the President's message at Buffalo, presented the following report:

To the Council:

The Committee appointed by the Council at its meeting on May 21, 1915, to propose amendments to the By-Laws, in accordance with the recommendations in the President's address at the meeting held in Buffalo, desire to present the following:

First. That no amendment it could suggest would give the Committee on Public Health greater freedom of action.

Second. Amend the By-Laws, Chapter VII, Section 2, by adding the words "A Committee on Economics" and a new Section 8 to read as follows: "The Committee on Medical Economics shall consist of five members including the chairman. It shall investigate all matters affecting the economic status of physicians and shall report annually to the House of Delegates such recommendations as may, in its judgment, seem proper."

Third. Chapter VII, Section 8 then becomes Section 9.

Fourth. The Committee believes that the recommendation regarding the change of the name of the Committee on Medical Research should not be approved because this Committee was organized for a definite purpose, namely, to work for medical research and to oppose anti-vivisection legislation. In addition, the Committee has funds which were left to it and which might be jeopardized if the Committee changes its name and functions.

Fifth. To give the powers suggested, to the Committee on Public Health add to Chapter VII, Section 5, at the end after the words "Public Health" the words "and Medical Education."

Sixth. As the By-Laws relating to amendments are ambiguous the following change is suggested:

For Chapter XII of the By-Laws substitute for Section 1, the following: "No article of these By-Laws shall be amended except by a majority vote of the delegates present and voting at any annual meeting, nor unless notice of the proposed amendment shall have been given at a previous annual meeting and shall have been published twice during the year in the official bulletin or journal of the Society, or sent by order of the House of Delegates to each county society in affiliation with the Society at least two months before the meeting at which final action shall be taken thereon."

Respectfully submitted,

Frank Van Fleet, *Chairman.*
Ralph Waldo.
Floyd M. Crandall.

Moved, seconded and carried that it be accepted.

The following letter from Dr. Rodman, President of the American Medical Association, was read:

Dr. W. Stanton Gleason,
Newburgh, N. Y.

Dear Doctor:

I am enclosing a copy of a Resolution which was enthusiastically passed by the Southern Medical Association at its meeting in Dallas, Texas, November 8-11, 1915. The resolution explains itself.

Would you be kind enough to mail a copy of it to every county and other medical society in your state for adoption, and ask those societies in localities in which members of Congress or the Senate reside to have this subject specially brought to their attention by individuals or committees who may have personal acquaintance with said legislators? Congress meets very shortly; there is but little time left, and any action on your part should be prompt. In those instances where the Congressmen have left home, the appeal should be made by mail. Will you also please ask the journal of your society to make editorial comment on the matter in their next issue?

The measure to be proposed this winter looking to military preparedness makes no attempt to provide the soldiery with sufficient medical attendance in a crisis, or in peace, for that matter. No class of men is better fitted to pass upon the number of medical officers necessary to treat and keep in health a given number of men as the doctors of the country are. In these days of preventive medicine, thorough knowledge of the etiology of disease and the precise methods of care of the sick and wounded, armies have to be entrusted to specially trained medical men; otherwise casualties from avoidable diseases and lack of the proper treatment of the injured becomes very great. In the end, the state is apt to suffer unduly in the matter of pensions and the young and vigorous manhood of our country to be sacrificed.

Hoping you will put your shoulder to the wheel, and that your efforts will bring good results, I am

Sincerely yours,
W. L. Rodman.

Copy of Resolutions Passed by the Southern Medical Association at Dallas, Texas, Nov. 8-11, 1915.

Whereas, the President and the Honorable Secretary of War, have announced in the public press that a scheme for the reorganization of the Army will be presented to Congress at its coming session, which will materially increase the military establishment, and

Whereas, We recall the indignant protests and criticisms of the Nation at the failure to provide adequately for the sick and wounded at the beginning of the Civil War and the Spanish-American War, and

Whereas, It is known that this failure was due to the lack of a sufficient number of medical officers in the regular army and a means for increasing the medical establishment at the outbreak of war, and

Whereas, In spite of the lessons of the Spanish-American War which were fresh in mind in the reorganization of the Army in 1901, the Medical Department was not properly increased and no provision was made for its expansion in time of emergency, and

Whereas, To correct the defects in the 1901 legislation, subsequent legislation was necessary in which the medical profession of the United States was called on to assist.

Therefore, Be it resolved by the Southern Medical Association, in session at Dallas, Texas, that the Secretary of War be petitioned to make adequate provision in the reorganization of the Army about to be presented to Congress for a sufficient number of medical officers for the regular establishment, which provision should aggregate a proportion of medical officers of, at least, seventy-five hundredths of one per cent of the enlisted strength of the Army, or such number as the Surgeon-General of the Army may deem necessary, and

Be it further resolved, That the Secretary be petitioned to make provision in this reorganization for the expansion of the Medical Department at the beginning of War, by calling into service in the Medical Reserve Corps physicians from civil life who have been instructed in their special duties as medical officers in our summer camps, and otherwise as the War Department may see fit.

Moved, seconded and carried that it be referred to a committee of three and the chairman to report on the same to the House of Delegates at its next annual meeting.

The Chair appointed on the committee: Drs. Lambert, Chairman, Shanahan, McKee and Ransom.

The following letter from the Medical Librarian of the New York State Library was read:

Dr. Wisner R. Townsend,
Secretary, Medical Society of the State of New York, New York City.

Dear Sir:

The State Library finds among the State documents deposited with it for distribution several hundred boxes of Transactions of the Medical Society of the State of New York. For lack of room, most of these will have to be disposed of in some way. Is the Society sufficiently interested to furnish storage space for the accumulation, or does it wish to keep in its possession a certain number of copies? In either case the Library will be glad to ship the volumes, charges prepaid.

If the Society does not wish to keep them, will you advise us as to the approximate number of copies you may think desirable to hold for future requirements? Only a limited number can be retained and unless we hear from you to the contrary, the remainder will be discarded at an early date.

Very truly yours,
Frances K. Ray.

The Secretary has written asking for more detailed information and stating that the matter would be referred to the Council. No further information has been forthcoming as to the number of books or the years which the transactions represent as the State Librarian stated that it would be impossible to give us this information until some future time.

Moved, seconded and carried that the matter be left to the Secretary and Dr. Rooney, with power.

Dr. Lambert, Treasurer, made the following report:

Balance in Bank, December 10, 1915........	$14,683.16
Less Directory Bill (unpaid)...............	4,852.26
	$9,830.90

(Signed) Alexander Lambert, *Treas.*

Moved, seconded and carried that it be accepted.

The Committee on Finance made the following report:

The Committee on Finance begs to report that it has audited the accounts of the Committee on Arrangements of the Annual Meeting held in Buffalo, 1915, and found all vouchers correct and it has ordered all indebtedness paid.

Alexander Lambert, *Chairman.*
Frank Van Fleet.
Henry Lyle Winter.

Moved, seconded and carried that it be accepted.

The following resolution was introduced, seconded and carried:

No committee shall under any circumstances incident to any work required of it in carrying out the purposes for which it was selected, pay or contract to pay any sum of money in excess of $50 in any one year, without first receiving the authorization of the Medical Society of the State of New York through its Finance Committee and any sum so expended in excess of such sum of $50 shall be a personal indebtedness against the members of such committee and shall not be audited or paid by the Treasurer of the Medical Society of the State of New York. It is understood that this resolution shall be in amplification of the provisions of the Constitution and By-Laws.

The Committee on Scientific Work presented the following report:

To the Council:

The Committee on Scientific Work held a meeting at the office of the Chairman last Saturday afternoon. The program is proceeding satisfactorily and there is every promise, so far as the Scientific Work is concerned, of a successful meeting.

Up to the present time, the orator has not been selected.

No decision yet has been made in regard to the employment of stenographers, which was committed to the Chairman of the Committee with power.

Respectfully submitted,
Thomas J. Harris, *Chairman.*

Moved, seconded and carried that it be accepted.

The Committee on Scientific Work, through the Chairman, Dr. Harris, also reported that they cannot secure competent shorthand reporters to take the minutes of the various meetings to be held at Saratoga, but that the Stenotype Company had expressed willingness to do the same and had guaranteed to give satisfactory results at a figure within the amount the Finance Committee of the Council is willing to appropriate, namely no more than $400 for the entire meeting.

Dr. Ferris, Chairman of the Committee on Arrangements presented the following report:

To the Council of the Medical Society of the State of New York:

GENTLEMEN:

Your Chairman of the Committee on Arrangements for the Annual Meeting of our Society to be held in Saratoga Springs, May 15, 16, 17 and 18, 1916, begs leave to report as follows:

Your Committee has had several meetings of an informal nature beside two regular meetings when all were present, and the details concerning the arrangements for the Annual Meeting have been studied thoroughly. I desire to report on each detail separately.

ACCOMMODATIONS—HEADQUARTERS.

The headquarters for our meeting will be located in the United States Hotel, descriptive circular of which, containing a picture of the building, I now distribute to you. The hotel is located two minutes from the railroad station, as shown on the map of Saratoga Springs, which I now distribute. The hotel consists of six stories containing 917 bedrooms, and capable of housing 1,200 people. The hotel will be open on April 26, 1916, for the reception of the delegates and friends of the great Methodist Episcopal Conference, which will continue during the entire month of May. This conference bringing several hundred people, will necessitate the opening of the hotels and boarding houses of the town, as well as all the shops and stores, so that there will be an atmosphere of life and activity with its accompanying satisfaction and pleasure to our delegates, which would not be possible were we to be the only strangers in the city during the month of May. The committee having in charge the accommodation of the delegates to the Methodist Conference estimates that their delegates who are to be quartered at the United States Hotel will total not more than 450, leaving ample room for us in the same hotel, since some of our visiting physicians have already applied for accommodations in Dr. Strong's, as well as other houses. The charges will be $5 for room and three meals per day, or $6 for room, three meals, and private bath per day. The table is excellent and always well maintained, and the service is very good, and the reputation of the house is that it takes the best of care of all of its guests.

There are twenty-four other hotels and boarding houses that will be open, furnishing quarters for 1,861 additional people, from $2 to $4 per day each, American plan, or from $3 to $5 per day each, American plan, including private bath. After March 15, a few rooms will be open in private houses affording additional accommodations for about fifty people, as I am informed. The total accommodations available in the town will therefore, be 3,100 rooms. If the Grand Union Hotel opens, which is not certain at this time, there will be additional quarters for over 1,200 on either American or European plan. Your Committee had arranged with the proprietor of the Grand Union Hotel to entertain our meeting and give us rooms for all our activities under one roof; but later developments caused him to withdraw his oral agreement.

Besides the Grand Union Hotel restaurant, which will be of high grade, there will be two other restaurants open in the city where meals can be obtained at 40 and 50 cents each; but it will be worth while for the delegates and visitors to return to their boarding places or hotels for their meals since they will be more satisfactory, more promptly served, and quite as convenient, since our distances are all very small. The registration and information booth will be located in the Exhibition Hall, in all probability, the Casino being an alternative.

Your Committee has secured the use of four rooms in the Casino building, which you will find on the map is situated in the City Park a few steps from Broadway and about two blocks from the United States Hotel. These four rooms will afford accommodation for the house of delegates, the general open meeting, the section on medicine, the section on surgery, the section on pediatrics, and the section on obstetrics and gynecology; the auditorium being used for the first three bodies mentioned. The section on eye, ear, nose and throat will be provided with a room seating over 150 in the City Hall; while the public health section will be accommodated in the stock room of the United States Hotel, which seats 75 or 100. With one exception these rooms are on the first floor in their respective buildings. Provision has been made for securing chairs enough to provide for seating 750 at the general meeting, 150 at the meeting of the house of delegates, 250 for the section on medicine, and the same number for the section on surgery, 125 for the section on obstetrics and gynecology, 100 for the section on pediatrics, and 150 for the section on the eye, ear, nose and throat.

TRANSPORTATION.

Requests have been made for extra trains from Albany on the D. & H. Railroad and extra cars from New York City for the afternoon of May 15, and assurances have been given that the matter will be taken up with our Committee in January next. Request will be made to have a large gasolene railroad coach run from Schenectady direct to Saratoga Springs (cutting out the detour through Albany), on May 15 and on the morning of May 16, to accommodate delegates coming from the western and southwestern parts of the state. The river steamers of the Hudson Navigation Co. will be running on full schedule time during the entire month. Arrangements are being made with the local hackmen's association to charge reasonably small fees for transporting passengers short distances by horse-drawn carriages, or autos. Two large jitney busses will be run at frequent intervals, we are promised, through the city and down to the Lincoln Park (where Lincoln bath house stands), and on to the 260-acre Geyser Park of the State Reservation, two and a half miles from our hotel. Reasonable rates will be arranged for auto parties to Saratoga Lake, four miles away, as well as to Schuylerville, thirteen miles away, where are found the battlefields of Saratoga and Bemis Heights and certain Revolutionary relics.

GARAGES.

There are at least three reliable garages in the city where autos of those who wish to motor up from New York or other points can be reasonably housed.

OBJECTS AND PLACES OF INTEREST.

Beside the hospital, the "Cure," two State bath houses, the Sewage Disposal Works, and Mt. McGregor, there is a large number of places of interest which we have listed for the use of the delegates. A guide book, well illustrated, will be issued about May 1.

BANQUET.

If the Council desires a banquet, it can be spread either at the United States Hotel or in the Casino. If served in the Casino the cost including cigars, flowers, menus and music will be from $3.50 to $4 per plate. If 350 sit down to the banquet, the Committee will earn $135 at $4 per plate and lose $35 at $3.50 a plate. A slightly better figure can be obtained from the hotel proprietor, because he considers that there is a decided saving in not serving the regular dinner for which guests are paying if they sit down to the banquet in place of it, for which he is paid an extra fee.

DANCE AND BUFFET SERVICE.

If the Council desires to substitute a dance in place of a banquet, it can be financed at an expense of $1.50 each person, including food, music, hat room, cloak room, maid, dance cards, and tips.

SECRETARIES' BANQUET.

The secretaries' banquet can be spread either at the Casino or at the Hotel, according as that separate organization may prefer, and at reasonable rates for a good menu, with excellent food and considerable variety. Your chairman will be very glad to assist the organization of the secretaries in this matter when the proper time arrives.

ENTERTAINMENTS.

Being uncertain as to the number of women to expect, accompanying the delegates and visiting physicians, your Committee has estimated on the possibility of 200 individuals, and has projected an auto ride to Lake George by way of Lake Luzerne, for the ladies, making the tour of 70 miles through beautiful country. Fifteen free autos can be obtained carrying 90 people, and the remainder can be hired at $5 each for the round trip. Added to this diversion, we suggest a lunch at the country golf club, the two entertainments just named costing $310.

As an addition or perhaps a substitute entertainment for the women, we suggest a card party and tea, refreshments together with prizes costing about $30. We also have for your consideration an evening reception for the women, with vocal and piano music, which will cost $26. Should the women come to the banquet, and of course, to the dance with the men, if you decide upon having either function, all of the suggested entertainments for women may be omitted excepting the ride to Lake George.

A trip to Lake George for the men at a different time from that for the women, counting upon the participation of 500 physicians, will cost $450. A trip through the State Reservation property with a visit at one bath house to witness demonstration baths will cost $270.

EXHIBITS AND EXHIBITION HALL.

Your chairman had thought that possibly it might be a satisfactory plan to publish a program with some souvenir features, containing 20 to 24 pages of advertisements, as a means of income in place of exhibits. As I have learned that the large majority of the Committee of Scientific Work does not approve of such a program, that suggestion will be dropped entirely. We stand ready to obtain exhibitors, install exhibits, and earn such income as we may from this source. Dr. Humphrey, of our city was Chairman of the Committee on Exhibits in 1903, for the American Medical Association at the annual meeting at Saratoga Springs, and is enthusiastic and full of energy in view of the proposition to maintain an Exhibition Hall during our May meeting. There are two places only that seem available for this purpose. Patterson Spring Building, on Phila Street, less than a block from the hotel, with its windows fronting to the north and therefore with poor light. The floor space available in the Patterson Building amounts to 5,620 square feet. It can be secured, including light, for about $80, but special electric wiring would be necessary for which we have not yet an estimate. A better building by far for the purpose is the Armory, situated on Lake Avenue, about five short blocks from the hotel as shown on the map. This building offers 12,500 square feet of floor space and can be had, including light, for about $100 by special arrangements with the brigadier-general and the captain involved. I personally will become responsible for the care of the building and will put up a personal bond of $1,000 to secure it from loss or damage, as required by the State, if your Committee desires to install exhibits. There are some incidentals connected with the use of the Armory which I think would amount to less than $25 in addition, including watchman.

EXPENSES.

The expenses connected with the use of the rooms in the Casino, City Hall, and U. S. Hotel, together with the care of the registration and information booth (including two clerks, messenger, stationery and signs, bulletin board, telephone, electric light, rent of pigeon holes for mail box and rent for counter), stenographer, postage and incidentals for the transportation committee, outlay by reception committee (including three pieces of music, rental of palms, autos for the Governor and other special speakers), amount to $375. Expense of banquet or dance would be borne by each individual person. The expenses of projected excursions for the women and for the men are as stated and with an addition of 10 per cent for contingencies, the total possible outlay would be $1,760. Other committees have succeeded in raising as much money as this through exhibits and there is no reason why ours should not if the Council decides upon all these festivities. Within the total estimate has been included a possible expense for heating the rooms, in case the third week in May proves to be rainy and cold, which nobody anticipates but which must be provided for in order that our meetings may be held in absolute comfort.

OLD SUPPLIES.

Your Committee understands that the following old supplies which we can use are in the hands of the secretary: Badges and ribbons for the various delegates, committeemen, and guests, as well as exhibitors; several signs to be used in directing delegates to section meetings; dark boxes for the use of exhibitors who install X-ray pictures.

No entertainment, of course, will be arranged in such a way as to interfere with scientific work of the sections and no suggestion is made as to the hour for various entertainments, as we are uninformed as to the days or parts of days upon which section meetings will be held. Your chairman suggested that the section work should be confined to the mornings leaving the afternoons all free for inspection of state work in the reservation, and various trips to places of interest. We do not know whether this has been done, but we are ready to make such arrangements as are authorized and approved by the Council. Should other entertainments than those suggested be proposed, your Committee will cheerfully make arrangements to meet your desires. We understand that one general open meeting will be held on Tuesday evening at which the Governor of the State, Prof. Walter B. James, M.D., of New York and your chairman are to speak; but we have no further suggestions regarding open meetings. Our Reception Committee desires to arrange a reception for the Governor immediately after the exercises of Tuesday evening if agreeable to the Council.

Your Committee desires to learn at which section meetings lantern slides will be shown in order to make ample provision far in advance to darken windows, and presumes this information will be furnished by the Chairman of the Committee on Scientific Work.

Respectfully submitted,
ALBERT WARREN FERRIS,
Chairman.

Moved and seconded that the Commercial Exhibit be abandoned for the Saratoga meeting.

Moved and seconded as an amendment that the matter of the Commercial Exhibit be left to the Chairman of the Committee on Arrangements with power if it can be held without expense to the Society. On vote the amendment was lost.

On vote the original motion was carried.

Moved, seconded and carried that the Chairman of the Committee on Arrangements be authorized to publish at his discretion a souvenir program of the meeting for which advertisements may be solicited. The edition is not to exceed 5,000.

Moved, seconded and carried that an informal reception be given the Governor and out-going and incoming Presidents at the close of the meeting to be held on the evening of May 16th.

Moved, seconded and carried that the banquet be abandoned and in its place the Chairman of the Committee on Arrangements make plans for a smoker.

Moved, seconded and carried that the Council approve the recommendations of Dr. Rooney, Chairman of the Committee on Legislation in regard to introducing a bill relating to the Administration of Anæsthetics by Nurses.

Dr. Rooney presented proposed amendments to the bill, Int. 675, February 22, 1915, an Act to amend the public health law, relating to the practice of medicine, also a bill to make physicians preferred creditors of decedent estates. Both measures were referred to a committee of five including the President who should examine into the matter and make report as soon as possible.

The Chair appointed as the Committee, Dr. Van Fleet, Chairman, Drs. Rooney, Sadlier, Townsend and Gleason.

Dr. Ransom called the attention of the Council to the neglect of certain physicians to report births, deaths, etc., in this state. No action taken on same.

There being no further business the meeting adjourned at 1 P. M.

Wisner R. Townsend,
Secretary.

District Branches

Annual Meeting, Brooklyn, Monday, November 22, 1915.

The meeting was called to order at 9 A. M. in the uilding of the Medical Society of the County of Kings, Brooklyn. The President, Dr. Cooley, in the hair.

The first order of business was the adoption of the ew by-laws, including the changes which had been dopted by the First, Fourth, Fifth, Sixth, Seventh and Eighth Districts.

On motion duly seconded and carried Dr. Frederick . Holden, of Brooklyn, was nominated for the Second Vice-President, Dr. Holden was declared elected.

SCIENTIFIC SESSION.

1. "The Duty of the Physician to the Community." William S. Wadsworth, M.D., Philadelphia, Pa.

2. President's Address, "The County Society, Its rivileges, Duties and Obligations." James S. Cooley, lineola.

Dr. Winter, the Second Vice-President of the State ociety read a paper for Dr. Gleason, the President, aking a plea for loyalty to the County Societies, with ssumption of responsibilities to the Society, and the sponsibility of the physician to the community and e patient through his mental attitude.

After the meeting a vote of thanks was extended to rs. Wadsworth and Winter.

FIFTH DISTRICT BRANCH.

Annual Meeting, Little Falls, October 6, 1915.

The meeting called to order at 10.35 A. M., Dr. illiam D. Garlock, of Little Falls, presiding. About ghty members being present.

Dr. William Garlock read the President's address.

Dr. LeRoy Broun, of New York City, read a paper control of cancer.

Dr. Harvey R. Gaylord, of Buffalo, gave a most eresting paper on "Cancer Immunity." Discussion the above two papers was opened by Dr. Willis E. rd, of Utica, followed by Drs. Kidder, of Oswego, allace, of Syracuse, and Reid of Rome. Discussion sed by Drs. LeRoy Broun and Harvey Gaylord.

Dr. W. L. Wallace, of Syracuse, read a paper on upracondylar Fracture of Elbow," illustrated with tern slides.

Meeting adjourned for luncheon.

The afternoon meeting was called to order at 2 ock by the Chair.

Minutes of previous meeting read and approved.

The proposed amendments to the By-Laws were then en up and discussed.

Dr. Wisner R. Townsend, Secretary of the State iety, discussed these amendments and explained the reason for the same, after which they were adopted as amended.

Dr. Flaherty, of Syracuse, nominated Dr. James F. McCaw, of Watertown, for president. Moved and seconded that the Chair cast a ballot for Dr. McCaw for president. Carried.

Dr. G. M. Lewis, of Vernon, was nominated for first vice-president. Moved and seconded that the secretary cast the ballot for Dr. Lewis for first vice-president. Carried.

Dr. G. E. Clark, of Skaneateles, was nominated for second vice-president. Moved and seconded that the secretary cast the ballot for Dr. Clark for second vice-president. Carried.

Dr. Horace Pritchard, of Syracuse, was nominated for secretary. Moved and seconded that the secretary cast the ballot for Dr. Pritchard for secretary. Carried.

Dr. Nelson O. Brooks, of Oneida, was nominated for treasurer. Moved and seconded that the secretary cast the ballot for Dr. Brooks for treasurer. Carried.

A motion was made, seconded and unanimously carried that the secretary extend to Mrs. L. L. Brainard, of Little Falls, the sincere thanks of the Society for the use of the Opera House as a meeting place.

A paper on "The Nature of General Infections" was read by Dr. Wardner D. Ayer, of Syracuse.

Dr. Andrew MacFarlane, of Albany, read a paper on the "Treatment of General Infections."

Dr. Charles F. Burrows, of Syracuse, read a paper on the "Treatment of Diphtheria." A general discussion followed the reading of these three papers. Motion made, seconded and carried that a rising vote of thanks be extended to Dr. MacFarlane for his most excellent paper.

Dr. Sargent F. Snow, of Syracuse, read a paper "The Fundamental Causes and Principles of Treatment in Acute Membrane Inflammation, with special reference to Inflammations of the Ear, Nose and Throat."

Dr. Richard G. Kibby, of Utica, read a paper "Anæsthesia" with special apparatus. Discussion opened by Dr. Gregor continued by Drs. Buettner and Murray.

Dr. William G. Alsever. of Syracuse, read a paper on "The Causes and Results of Abnormal Blood Pressure." Discussed by Dr. A. A. Gillett.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A Text-Book of the Practice of Medicine. By James M. Anders, M.D., Ph.D., LL.D., Prof. Medicine and Clinical Medicine, Medico-Chirurgical College, Phila. Twelfth Edition Thoroughly Revised. Octavo of 1336 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $5.50 net; Half Morocco, $7.00 net.

Bandaging. By A. D. Whiting, M.D., Instructor in Surgery at the University of Pennsylvania. 12 mo. of 151 pages, with 117 original illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $1.25 net.

An Introduction to Bacteriology for Nurses. By Harry W. Carey, A.B., M.D., Former Assistant Bacteriologist Bender Hygienic Laboratory, Albany, N. Y.; Associate in Medicine, Samaritan Hosp. and City Bacteriologist, Troy, N. Y. F. A. Davis Co., Publishers, Phila., Pa. English Depot, Stanley Phillips, London, 1915. Price, $1.00 net.

Theory and Practice of Bloodletting. By Heinrich Stern, M.D., LL.D. Visiting Physician St. Mark's Hosp., Consulting Physician Methodist-Episcopal, Central Islip, Port Chester and Glens Falls Hosps. Rebman & Co., New York. 1915.

In Memoriam

DR. JOSEPH J. O'CONNELL.

Dr. Joseph J. O'Connell, Health Officer of the Port of New York, died at his official home at the Quarantine Boarding Station, Rosebank, Staten Island, at four o'clock on the morning of January 1. Myocarditis caused his death. He began to suffer in mid-August. In the hope that a restful sea voyage would restore the tone of the weakened organ Dr. O'Connell went to Havana in October. He returned ten days later, without any sign of improvement. During the six weeks of trying illness that followed there were alternate periods of improvement and depression. On Christmas eve Dr. O'Connell was distinctly improved. On Christmas night a depression began which ended in his death.

Dr. Joseph J. O'Connell was born in Brooklyn, September 14, 1866. When he was seventeen years old the death of his father occurred, and the young man, then a recent graduate from St. Francis College in Brooklyn, took a course in pharmacy and purchased a drug store, at the same time entering the Long Island Medical College as a student in medicine. He received his degree of Doctor of Medicine from that institution in 1887.

His first experience in public health work was as Sanitary Inspector in charge of the Contagious Bureau of the Brooklyn City Board of Health. Later, Dr. O'Connell was appointed alienist in the Kings County Hospital for the Insane, a position he filled for twenty years. During his professional career in Brooklyn Dr. O'Connell served as surgeon of St. Mary's Female Hospital, and as a member of the visiting staff of St. Mary's General Hospital and the Hospital for Mental and Nervous Diseases. During the last year Dr. O'Connell was appointed Lecturer on Hygiene in the Public Health Section of the New York University, and Lecturer on Public Health in the Long Island College Hospital. At the time of his death Dr. O'Connell was a member of the American Medical Association, the American Public Health Association, Medical Society of the State of New York, the Kings County Medical Society, the Associated Physicians of Long Island, St. Mary's Medical Club, and many other organizations connected with his profession.

He was appointed Health Officer of the Port of New York by Governor John A. Dix, on February 19, 1912, and took charge of the Quarantine Service two days later. Within a few years he became a striking and commanding figure in public health work. The tremendous energy, the combination of courage, resolution, professional skill, clear vision and quick comprehension gave him an immediate grasp of the quarantine problem. The improvements he made in the quarantine service were remarkable. As an administrative officer he was excellent; he introduced reforms in the purchase and distribution of supplies that eliminated waste and dishonesty and he contrived a fee system which reduced the cost of the service to the taxpayers to $49,000 in the last year before the war disturbed the normal conditions of commerce. He did away with all delays in the inspection of steamships, giving to the maritime interests of the port a wonderfully expeditious service. The quarantine physicians begin inspecting vessels at sunrise and Dr. O'Connell, while his physical strength allowed him to do so, boarded the vessels with his deputies. He abolished night inspections not for the purpose of shortening his hours of duty but because as every medical man will readily see, inspections by artificial light would be of very slight diagnostic value.

Dr. O'Connell renovated the hospital buildings and detention pavilions on the two quarantine islands, installed a system of sanitary drainage, replaced the old tub system of bathing with a series of modern shower baths, invaluable in typhus sanitation. He constructed at the Quarantine Station a splendid laboratory for his pathological and bacteriological bureau, and engaged as director and assistant director respectively, Dr. Oscar Teague, late of the Bureau of Science in Manila, and Dr. Otto Schöbl to whose work in the Philippine Bureau of Science was attributed the clearing up of cholera and plague in the islands. Under these two men Dr. O'Connell trained a corps of bacteriologists especially in cholera and the other quarantinable diseases, obtaining for their work fresh cholera cultures from Austria, Egypt and the Philippine Islands. The research work done in the laboratory in one year and reported in Dr. O'Connell's last annual report is of amazing volume and great scientific value.

During the typhus visitation of New York harbor in the winter and spring of 1914 Dr. O'Connell handled 2,600 "contacts" and twenty actual cases, and devised a scheme of sanitation so perfect that not a secondary case occurred among the detains or the physicians, nurses and attendants. When the war in Europe broke out the German government made request through agents here for fifty copies of the department report in which Dr. O'Connell described his scheme, and his system has been used by the German and Austrian medical authorities with signal success in the Eastern theatre of hostilities. Dr. O'Connell's quarantine measures were models in public health work. His anti-plague regulation was copied in form and phraseology by the United States Public Health Service.

There is now in the hands of the printer a paper on his study of the possibility of the choleraic infection of the waters of New York harbor in which Dr. O'Connell correlated laboratory studies as to the viability of the cholera organism in the waters of the bay, with a study of superficial tidal phenomena. Dr. O'Connell wrote on typhus fever, sulphur and sanitation, sulphur gas and bacterial forms, hygiene and numerous other public health subjects. At the last annual meeting of the Medical Society of the State of New York, Dr. O'Connell's work was praised highly in the report of the Committee on Public Health.

Dr. O'Connell was active in social as well as in professional life. Among the social organizations of which he was a member are the Brooklyn Club, the Montauk Club and the Crescent Athletic Club. His widow, who was a Miss Margaret Carty, of Brooklyn, and three children, Harold, age nineteen, Mary Louise, age thirteen, and Joseph, age seven, survive him.

Deaths

Ogilvie De Villo Ball, M.D., Albany, died December 15, 1915.

Charles Clifford Barrows, M.D., New York City, died January 2, 1916.

Erdmann N. Brandt, M.D., Tarrytown, died December 23, 1915.

Patrick H. Bumster, M.D., Long Island City, died December 1, 1915.

Eugene J. Gallagher, M.D., Yonkers, died December 3, 1915.

Charles Alfred Haffner, M.D., New York City, died December 14, 1915.

George Thomas Jackson, M.D., New York City, died January 3, 1916.

Edward Charles Kroos, M.D., Brooklyn, died December 30, 1915.

Arnold Gustav Leo, M.D., New York City, died December 31, 1915.

Joseph J. O'Connell, M.D., Rosebank, died January 1, 1916.

John O. Roe, M.D., Rochester, died December 24, 1915.

George Peaslee Shears, M.D., New York City, died December 12, 1915.

A. Alexander Smith, M.D., New York City, died December 13, 1915.

William Lewis Suesholtz, M.D., Brooklyn, died November 26, 1915.

Lansing Van Auken, M.D., Watervliet, died November 27, 1915.

George W. Welty, M.D., Brooklyn, died December 1 1915.

Fred D. Whitehead, M.D., Malone, died December 17 1915.

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ORIGINAL ARTICLES

SECTIONALISM.

By FLOYD M. CRANDALL, M.D.,
NEW YORK CITY.

THERE was once an aged man who had seven discordant sons who quarelled continually. Summoning them into his presence one day, he handed each a reed and bade him break it. This each one did and cast the fragments at his feet. The old man then took seven similar reeds and bound them firmly together into a sheaf, which he handed to his sons with the admonition that they break it. Each strove mightily to break the bundle but failed. Thereupon, the father drew the moral that in union there is strength and uttered the maxim: "United we stand, divided we fall."

The Medical Society of the State of New York has grave need of pondering upon this maxim. There is reason to fear that it has forgotten it and has started upon a road that will lead to misfortune and disaster. At this time of transition and stress for the medical profession, a policy of sectionalism and class controversy will work untold harm to the profession and its members. So imminent is the danger that I feel impelled to write, because through birth, education, and environment I see, perhaps more clearly than some, the drift of present tendencies.

When a witness is put upon the stand he is "qualified" by the court as to his ability to give special evidence. It may not seem improper for me, therefore, to qualify by introducing a personal paragraph in explanation for my writing on this subject. Born and reared in the Genesee Valley, the son of a village physician who died in my boyhood, I studied medicine with two village physicians and learned much of country conditions in that impressionable period, and for thirty-one years have practiced medicine in New York City. In service in the County Society, State Society, American Medical Association, and State Board of Medical Examiners, I have learned much of medical men, their trials and their needs. During my whole life I have been in intimate contact with all sorts and conditions of physicians of country, village, city, and metropolis. I am writing this simply in explanation of the reason that impels me to say the things I am about to say, for much of the misunderstanding between the various classes of our mixed and heterogeneous society is due to ignorance of diverse conditions.

Let us consider for a moment the difficulties which continually confront it. It has the task of welding into a harmonious whole the most mixed and diverse mass of medical men on the face of this globe. The State of New York contains the most varied, antagonistic, and heterogeneous mass of humanity of any state or nation of equal size in the world. What the community is, such are its doctors, for they reflect the conditions in which they live and practice.

The geographical diversity of New York is remarkable and is reflected in the people and their physicians. Long Island, with its hundreds of miles of sea coast and peculiar conformation, is a maritime province with interests as distinctive as they are varied. The Adirondacks, Catskills, and Highlands present the conditions peculiar to mountainous regions. The great river valleys are teaming with factories and industrial works which bring their own peculiar requirements. The lake region of Central New York, with its vast and rich agricultural interests and the more elevated regions of the Southern Tier present conditions different from those of other localities. Of the cities of the State, each has its characteristics and peculiarities. In addition to all these varied regions is the metropolis with its five distinctive boroughs with their mixed populations. In two of these boroughs, at least, the population is so varied that one locality knows not the other. In no other place in the world is it more true that one-half does not know how the other half lives. One might, indeed, say that one-tenth does not know how the other nine-tenths live.

This, then, is the material from which the New York State Medical Society draws its membership. A physician born and reared in the city may be and usually is totally ignorant of the conditions under which his country brother lives and practices. The reverse is equally true. The country-bred boy cannot understand the life and necessities of the physician of the metropolis. Both are apt to be intolerant and inconsiderate of the difficulties and necessities of the other. The true spirit should be to admit lack of understanding when differences arise and to be willing to concede to another class measures which that class asserts are necessary to its wellbeing, even if the reasons are not wholly clear.

The diverse character of the Society renders mutual concession, reciprocity, and forbearance often necessary. It has been asserted in the House of Delegates that no activity should be carried on which does not confer an equal benefit upon every member. This has, at first thought, a sound of fairness, but in actual fact is an impossibility. Take, for example, the case of a man who joins a social club. In that club is a billiard room. He does not play billiards, but pays the same dues as the man who does. Suppose he goes to the governors of the club and demands the closing of the billiard room because it is useless to him. Another goes before them and demands the closing of the library because he plays billiards and never goes to the club to read. Both would be laughed out of court. Each of these members pays the same dues, but gets from the club different benefits. Neither utilizes every facility offered and does not attempt to abolish those he does not care for.

Thus it is with us in the State Society. The activity most universally appreciated is probably the legal defense, but even this is not and cannot be of equal value to every member. It cannot possibly be of the same value to the man with a large inherited income in addition to professional earnings, that it is to a struggling practitioner with a large family and but a small professional income. To the former a suit for malpractice is an annoyance, to the latter a disaster.

Upon the reorganization of the Society after the amalgamation in 1905 three activities of especial financial value to the members were established with unanimous approval. These were legal defense, the State Journal of Medicine, and the Directory. While each of these is of especial value to certain elements of the Society, every one is of value to every member, although some seem to be unable to clearly see it. Each has its opponents, either active or passive. This opposition comes largely, it seems to me, either from lack of knowledge, or from a tendency to restrict one's view and a disinclination to look beyond one's own door-yard.

Lack of appreciation of legal defense is due almost entirely to ignorance of its value. In the country a suit against a physician is known to every one. The physicians of the country attend the trial in large numbers and become deeply impressed with the value of the legal defense. In the large cities it is radically different, for a suit is known only to a small circle. The knowledge that a suit for malpractice has been brought is always detrimental to a practitioner, especially if the facts are not known. Therefore, it has been the policy, and the right policy, to publish no names and not to herald the matter abroad. As a result, hundreds of physicians of the large cities do not understand the splendid work our Counsel is doing for us. I wish every member of the Society could spend a day in the court room and observe his methods and learn of his successes. The passive attitude of many members would be replaced by enthusiastic support.

The State Journal of Medicine is an unifying force of great importance to the State Society. A State journal is not simply a high class scientific publication. It is much more. Its primary object is to bring the various component societies into an understanding and knowledge of each other, and to be a medium of communication between the Society and its membership. To bring the members and the county societies into acquaintance and fellowship is one of its chief functions. It is of constant value to the officers of the component societies, as no volume of transactions can possibly be. With the excellent work now being done at each annual session and under its superb editorship, our joural is the equal in scientific quality of any medical journal now published, and is at the head of the State journals. It fulfills an imperative need in our system of organization and opposition, either active or passive, is opposed to the best interests of the State and county societies.

An accurate and reliable medical directory is of paramount importance to the medical profession of this State. It is utilized not by the medical profession alone, but by countless firms and business houses. Insurance companies and corporations which employ physicians, as well as boards of health, make it a rule to employ only those from reputable colleges and of good standing in the profession. They use our directory all the time. Experience has proved that medical directories published by lay firms are commercial in the extreme. They take most objectionable advertising and give preferred recognition to any one who will pay for it, physician, quack, or practitioner of pseudo-medical science alike. If the profession is to have an ethical and authentic directory, published without fear or favor, with its pages unbuyable, it must publish it itself. Were it not well known that there are physicians who value the directory by the number of times they open it themselves, the statement would hardly be credited. The value of a directory, like that of the telephone, is not measured by the outgoing messages only.

The State Society is the agent best capable of publishing such a work. It must keep its own roster always up to date, and at large expense accumulate a great body of data each year for its own constant use. A substantial percentage of the annual cost of the Directory would be necessary even if none were published. The State Society has avenues of communication with every county of the State, and is in intimate and constant touch with the whole profession. Its moral obligation to publish a directory cannot be successfully argued away. It is a potent protector against unlicensed and illegal practitioners, even in the small counties. It is, in fact, the rural counties that are most lax in enforcing the registration laws. When the Directory was started, it unearthed over 500 unregistered practitioners, mostly in the up-State counties. It is a permanent barrier against them, for when a name does not appear, there is warrant for investigation.

A directory is an absolute necessity to several thousand of the membership, and good policy would suggest that they should not be antagonized by depriving them of it. But this is, after all, of less importance than would be the turning over of its directory by a great profession to commercial interests that would exploit all sorts and conditions of quacks and charlatans according to the price paid. It would be to the disgrace of the Society to permit its reputable members to be thus grouped and discriminated against. It is certain that if the Society were to abdicate its duty to the profession and cease annually to publish its own directory, a commercial directory would promptly appear. It would be too fertile and promising a field to be neglected by clever commercial interests. It is the moral duty of the Society to cultivate that field itself, for the honor and up-building of the profession.

And what is the present state of discontent and unrest within the Society all about—for it is certain that such a state is existent? It is assuredly not over any fundamental principle of organization or professional policy, but largely over subsidiary questions pertaining to three activities of the Society. This hostility shows itself most clearly in the House of Delegates. Some of the country members have brooded over what they have felt to be grievances until they have grown beyond their original size. The city members return after each annual meeting indignant at what they feel are attempts to take from them their rights. Such states of mind inevitably lead to reprisal and increase of strained relations. If this condition goes on, victory by ballot for either side will be a barren one, for the result will either be sullen submission with constant resistance or disruption.

The only right and satisfactory solution of the situation is a universal attempt at mutual understanding, at mutual concession and reciprocity, and a minimizing rather than a nursing of grievances. Agitators and makers of trouble should be relegated to the rear. The apostle of unrest who fans the smouldering fires of suspicion and discontent and preaches sectionalism and class hatred is one of the most dangerous of undesirable citizens.

The folly of medical strife is well demonstrated by a brief review of not remote medical history. I have in my possession an authentic list of the medical practice laws enacted by the New York Legislature since 1760. In every period but one there were laws to advance the standard of medical practice and education. That period was from 1854 to 1873, when not a single law looking to that end was enacted. The explanation is simple. During that time the Homeopathic and Eclectic Medical Societies were chartered and invested with legal rights. The contest within the profession was violent and acrimonious and led to no good. This is a striking commentary upon the folly of professional strife and contention. During the time when the contest between the schools of medicine was at its height, the energies of the profession seem to have been completely exhausted by the strife. Not a single successful effort was made for eighteen years to improve professional conditions by new enactments.

During all medical history there has never been a time when the difficulties of the profession were greater than they are today; when it was more imperative that it should stand with an undivided front. We are in a transition period of unprecedented gravity. The social order of things is being changed. The system of workman's compensation is but one manifestation of the social revolution that is quietly but resistlessly going on. These changes are rooted in a profound sociological movement of world-wide extent. In the British Empire and on the Continent they are farther advanced than they are with us. They cannot be stayed, but they may be directed, and it behooves the medical profession to be alive to the changes going on and ready as an undivided body to meet them. Never has the need of unity been greater. If the profession shuts its eyes to these conditions and relapses into a state of guerrilla warfare within itself, it will suffer irreparable harm. It is time that it woke up and came to itself and ceased bickering over non-essentials.

This social revolution is profound in its nature and goes to the very foundation of organized modern society. The medical profession, while gravely affected by it, is but a factor in its causation. This cannot be too strongly impressed upon medical men. We are in the grasp of powers wholly outside of our profession, powers that run as deep as society itself. Our present state of disquietude is not due to one or to a few superficial causes alone. Organizations which seek to remedy our ills by gross commercialism, by vituperation and indiscriminate attacks upon everything and everybody, are foredoomed to failure. Their outlook is narrow, erroneous, and futile.

I would urge upon every member of the Society the reading and re-reading of the report of the Judicial Council (the Supreme Court of the American Medical Association) made at the San Francisco meeting and published in the Journal of the Association for July 3, 1915. It is the most complete and enlightening exposition that has appeared in English of the principles and laws, not alone of industrial and social insurance, but of the social revolution now under way.

As nations in time of peril drop partisan politics at the water's edge, so we in time of stress and professional danger should lay aside petty grievances and stand together for mutual protection.

THE TREATMENT OF THE DISTURBANCES OF DIGESTION IN INFANCY.*

By JOHN LOVETT MORSE, A.M., M.D.,

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IT is necessary before taking up the treatment of the disturbances of digestion in infancy to define what diseases or conditions are included under the head "disturbances of digestion." The classification of the diseases of the gastroenteric tract, which was adopted two years ago by the Pediatric Department of the Harvard Medical School, is based as far as possible on the etiology of these diseases. Three consecutive divisions of this classification are:

(*a*) Nervous disturbances of the digestive tract.

(*b*) Disturbances of digestion.

(*c*) Infections.

Under the head of nervous disturbances of the digestive tract are included those conditions in which the symptoms referable to the digestive tract are due to disturbances of the functions of this tract as the result of abnormal influences transmitted to it from unduly irritable or exhausted nervous centers. The most characteristic symptoms are those due to the disturbance of the mechanical functions of the stomach and intestines. These symptoms are vomiting and diarrhea. The vomitus and stools show no evidences of disturbance of the digestion. When the causes which act through the nervous system cause a disturbance of the secretory functions of the digestive tract, the condition is really an indigestion, and the symptoms are indistinguishable from those due to a disturbance of these functions from other causes.

Disturbance of the digestion may be caused by an excess of an otherwise suitable food, by a too rich but otherwise well-balanced food, and by foods containing an excessive amount of one or of several of the food elements. It may also be caused indirectly by other diseases or by any extraneous causes which weaken the general resistance and diminish the digestive powers. The disturbance of digestion may be either acute or chronic. The pathological changes, both macroscopic and microscopic, are insignificant, never exceeding reddening of the surface with an excessive secretion of mucus and slight desquamation of the superficial epithelium. In the more chronic cases there is a general wasting of all the tissues of the body, and in both the acute and chronic cases degenerative changes, usually fatty, may develop in the parenchymatous organs. The important changes are in the metabolic processes of the body. These are not recognizable pathologically, and are at present imperfectly understood. They vary according to which of the food elements is the cause of the indigestion.

It is assumed that microörganisms play no part in the etiology or symptomatology of simple indigestion. This assumption is, of course, not strictly true, because there is unquestionably a certain amount of fermentation under normal conditions and more in simple indigestion. In simple indigestion, however, the fermentation plays but a small part in either the pathology or symptomatology of the condition and none in the etiology. In many instances, however, the fermentative processes are marked and dominate the picture. When this occurs, the condition is spoken of as indigestion with fermentation. Fermentation may develop secondarily as the result of disturbances of the normal processes of digestion, or appear primarily as the result of the introduction of an excessive number of bacteria, whether or not members of the ordinary intestinal bacterial flora, into the intestine. It may also develop as the result of a change in the normal relations of the bacteria to each other from a badly balanced diet. The term fermentation is used here in its broad sense, and includes all the changes which take place in the various food elements as the result of the action of microörganisms upon them. It is assumed that in indigestion with fermentation there are no marked pathological lesions in the intestinal wall, and that no microörganisms pass from the intestines into the general circulation. The latter assumption is probably not strictly true, because it is presumable that an occasional microörganism does enter the blood stream. Toxic substances resulting from bacterial growth are, however, absorbed into the circulation.

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* Read at the Annual Meeting of the Medical Society of the State of New York at Buffalo, April 28, 1915.

The border line between infectious diarrhea and indigestion with fermentation is a rather indefinite one. Infectious diarrhea is also due to the action of microörganisms. In infectious diarrhea, however, the bacteria enter the intestinal wall and produce definite lesions of the wall. These lesions may or may not be severe. Bacteria presumably often pass through the wall into the circulation in infectious diarrhea, as do the products of bacterial growth.

This paper will deal only with the treatment of simple indigestion and indigestion with fermentation. Indigestion, as already stated, may be due to an excess of food or to an excess of an individual food element. The following classification of indigestion has, therefore, been adopted:

1. Indigestion from an excess of food.
2. Indigestion from an excess of an individual food element.
    (*a*) Fat.
    (*b*) Carbohydrate.
    (*c*) Protein.
    (*d*) Salts.
3. Indigestion with fermentation.

It is necessary in order to treat these disturbances of digestion intelligently and satisfactorily to determine what is the cause of the indigestion in the given case. All the different forms of indigestion have certain symptoms in common: disturbance of the appetite, flatulence and colic, vomiting, abnormal stools and disturbance of the nutrition. The relative severity of these symptoms varies, however, in accordance with which of the food elements is at fault. Fever is, for example, more common when the disturbance is due to an excess of sugar or salts. The odor of the vomitus varies in different cases and the stools are more or less characteristic. Much can be learned as to the etiological factor in the individual case by a careful study of the food which the baby is or has been taking. More can be learned, however, by a careful analysis of the symptoms, and most by a careful study of the stools. In fact, it is in most instances almost impossible to make a correct etiological diagnosis without an examination of the stools. The macroscopic examination of the stools is sufficient in many instances. In others, however, the microscopic examination is necessary. In fact, the microscopic examination is advisable in every instance. This examination is not a difficult one, and can be carried out in five minutes by any one with a little training and experience.

When it has been determined whether the indigestion is due to an excess of food as a whole, to an excessively rich food, or to an excessive amount of an individual food element, the treatment then consists primarily in the diminution in the amount or richness of the food or of the individual food element. The measures to be taken depend, of course, on whether the baby is breast-fed or artificially-fed. Time does not allow the consideration of these measures in detail. Certain points are, however, of especial importance. When the disturbance is due to too much food or to too rich a food, the amount or strength of the food should be cut down to a point lower than a normal baby of the given age would be taking. The condition will be remedied much more quickly if this is done than if the food is only cut down a little. The amount and strength of the food can be quickly raised when the symptoms are relieved. If the disturbance is due to an excess of an individual food element, the percentage of this element should, in the same way, be cut down to a lower point than would be suitable for a well baby of the given age. This is especially true when the disturbance is due to fat. After the symptoms are relieved, the amount of the individual food element can then be slowly raised to the limit of tolerance. This limit of tolerance can be more easily determined by the examination of the stools than in any other way. When an individual food element is cut down, it is necessary to raise the percentages of the other food elements in order to keep up the caloric value of the food. Great care must be taken, however, in doing this, not to set up an indigestion from an excess of one or more of these elements. There is no other form of fat which will take the place of that of cow's milk in an artificial food. When the disturbance is due to an excess of one of the sugars, it is often possible to substitute another sugar for it, and thus keep up the caloric value of the food. One of the dextrin-maltose preparations can, for example, be substituted for milk sugar or cane sugar, or milk sugar may be substituted for one of the dextrin-maltose preparations.

When the disturbance of digestion is due to an excess of protein in human milk, the percentage of protein can only be influenced by regulation of the mother's life. When it is due to an excess of protein in mixtures prepared with cow's milk, the trouble is almost invariably due to the casein in the milk. The disturbance caused by the casein is also almost always due to the fact that large hard curds are formed from cow's milk by rennin. The indication is, then, to prevent the formation of large casein curds in the stomach. This may be accomplished in several ways. The percentage of casein may be diminished or a part of the casein may be replaced by whey protein. It is usually advisable, however, not to diminish the percentage of casein, but to prevent the formation of large casein curds by boiling, by the addition of alkalies or of citrate of soda to the food, by the use of precipitated casein or buttermilk, or by the pancreatization of the food.

Drugs are of little or no use in the treatment of simple indigestion. There is practically never a deficiency of hydrochloric acid, pepsin or rennin. It is useless to give pancreatin by the mouth, because it is destroyed in the stomach. The only place for the "digestants" in these conditions is in the preparation of the food before it is ingested.

In all but the mildest acute cases, the intestinal tract should be cleaned out at the beginning of treatment. The most useful drug for this purpose is castor oil. Calomel may be used if there is vomiting, and milk of magnesia in the mildest cases. It is also advisable in the severe cases to wash out the bowel in the beginning. When the disturbance of the digestion is a chronic one, it is, as a rule, inadvisable to begin treatment with an initial catharsis. Catharsis is a weakening procedure, and when the baby is in a debilitated and feeble condition as the result of a long disturbance of the nutrition, it is liable to do serious injury. When the disturbance of nutrition is extreme, it may, in fact, take away the baby's last chance of recovery.

When babies with acute disturbances of digestion are vomiting, all food should be stopped. If the vomiting is severe, the stomach may be washed out with water or with a solution of bicarbonate of soda in water of the strength of one teaspoonful to a pint of water. If food is stopped, it is necessary to give as much water as the baby would take of liquid in its food. Babies can get along very well for a time without food, but they cannot get on without water. If they object to plain water, they will usually take it gladly if it is sweetened with saccharin. There is no objection to giving it in the form of very weak tea sweetened with saccharin, if the babies like it better in this way. The length of time during which food is withheld depends upon the severity of the symptoms in the given case. Great care must be exercised in stopping the food of babies suffering from chronic disturbances of nutrition, even when there is an acute exacerbation of the symptoms. Such babies are in no condition to bear acute starvation on top of a chronic inanition. In fact, the complete withdrawal of food is very likely to kill them. It is much wiser, therefore, under these conditions, to weaken or change the food than to stop it entirely.

It is useless to use inunctions of cod liver oil or other oils in the chronic disturbances of nutrition due to indigestion. There is little or no absorption of fat through the skin, certainly not enough to have any appreciable effect on the nutrition.

Indigestion With Fermentation.

So little is known accurately as to the normal intestinal flora and as to the normal variations in the relation of the individual elements of this flora to each other as the result of changes in the relative proportions of the various food elements that it is extremely difficult to draw any positive conclusions from the microscopic examination of the stools, not only as to what organism or organisms are causing the trouble in a given case but also as to what organisms may in general cause excessive fermentative changes. There is a certain amount of fairly satisfactory evidence to show that butyric acid bacilli, the B. acidophilus and the B. putrificus may cause abnormal fermentative changes in the intestinal contents. It is probable that under certain conditions the colon bacillus may also be the cause of abnormal fermentative processes. The unrestrained and excessive activity of the normal lactic acid forming organisms of the intestinal flora may also result in an excessive acid fermentation sufficient to cause definite and severe symptoms.

It is often difficult to distinguish between simple indigestion and indigestion with fermentation. Indigestion with fermentation is, in general, however, a more serious condition than simple indigestion. It is more often acute than chronic. It is likely to be associated with fever, which is often high. Vomiting is relatively uncommon. Diarrhea is a marked symptom in almost all cases. The character of the stools depends upon which of the food elements is being attacked by the microörganisms which are the cause of the trouble in the individual case. In the vast majority of instances indigestion with fermentation is due to organisms which produce fermentative changes in carbohydrates and to a less extent in fats. The stools are, therefore, usually green in color, strongly acid in reaction and odor, and irritating to the skin. They often contain a considerable amount of mucus, as the result of the irritation of the intestinal mucosa by the highly acid intestinal contents. They are often frothy and not infrequently contain many small, soft, fat curds. When the disease is caused by the abnormal activity of proteolytic organisms, the stools are more often yellow or yellowish-brown than green. They are ordinarily alkaline in reaction and have a foul odor. They seldom contain curds, and mucus is a less prominent constituent. In one type of this class of cases the stools are rather characteristic, being frequent, small, watery, dark-brown, alkaline and with a peculiar musty odor.

It is advisable in all acute cases of indigestion with fermentation to at once thoroughly clean out the intestinal tract. All food should be stopped for from twelve to twenty-four hours and water given freely. It is not safe, however, to continue the period of starvation longer than twenty-four hours when the microörganisms which are causing the trouble are of the proteolytic type, because the intestinal secretions are protein in nature and therefore provide a suitable culture medium for proteolytic bacteria. There is no objection to a longer period of starvation when the microörganisms are of the types which thrive on fats and carbohydrates.

The object to be aimed at in the treatment of indigestion with fermentation is the destruction, or at least the inhibition of the activity of the microörganisms which are the cause of the disease. It is useless to attempt to do this by the administration of drugs by the mouth, because it is impossible to give any of the so-called intestinal antiseptics in large enough doses to have any effect on the pathogenic bacteria in the intestine without poisoning the baby. If they did have any action it would be exerted, moreover, on the antagonistic as well as the pathogenic bacteria. They would be likely, therefore, to do as much harm as good. It is possible that the salts of bismuth may diminish the intensity of the symptoms to a small extent. They do not have, however, any curative action. If used, they should be given in large doses. The subcarbonate or the milk of bismuth are safer than the subnitrate. Irrigation of the bowels is useless, because the fluid does not reach the small intestine, where the trouble lies.

It is possible in some instances to destroy the pathogenic microörganisms, or, at any rate, to materially diminish their numbers and inhibit their activity, by the administration of antagonistic bacteria. This method has been proved to be effectual when the disturbance is due to the B. perfringens and organisms of the gas bacillus group. Lactic acid bacilli have an antagonistic action on all of these organisms. They are indicated, therefore, in the treatment of indigestion with fermentation due to organisms which thrive on carbohydrates. They may be given in the form of broth cultures, in the form of buttermilk, or in the form of modified milk ripened by them. The best method of giving them, however, is in the form of ripened modified milk, because when given in this way the food can also be modified to suit the needs of the individual infant. Lactic acid organisms are also indicated in those conditions in which the disturbance is due to the proteolytic organisms which they antagonize. They should not be given, of course, in those cases in which the disease is due to the excessive activity of lactic acid organisms.

Another way by which the number of the organisms causing indigestion with fermentation can be diminished and their activity inhibited is by a change in the character of the infant's food. A change in the character of the food results in a change in the character of the intestinal contents, that is, in the medium in which the pathogenic organisms are growing. If these are of the types which thrive on carbohydrate media, the percentages of the carbohydrates should be diminished and that of the protein increased. The percentage of the fats should also be diminished. When the organisms are proteolytic, the percentage of the protein should be diminished and that of the carbohydrates increased. When the disturbance is due to fermentation of the carbohydrates, much can be accomplished by changing the character of the carbohydrate. Protein food, such as beef juice, broth and albumin water, should not be given in the cases in which the disturbance is due to proteolytic organisms. It is not usually necessary to examine the stools bacteriologically, because it can almost always be told from the character of the stools whether the organisms at fault are those which thrive on carbohydrates or those which thrive on protein.

Babies that are seriously ill with indigestion with fermentation are very likely to show one or more rather characteristic symptoms or groups of symptoms. One of these groups of symptoms almost invariably develops toward the end in fatal cases. These symptoms are:

(*a*) Excessive vomiting.

(*b*) Hyperpyrexia.

(*c*) Symptoms of irritation of the central nervous system.

(*d*) Prostration and collapse.

It is probable that these symptoms are chiefly manifestations of toxæmia. It is presumable that the loss of water through the bowels may also play a part in their production.

If, when any of these symptoms appear, there is any doubt as to whether the bowels have been thoroughly emptied, it is advisable to repeat the initial catharsis. It is also advisable, if the condition of the nutrition warrants it, to withhold food for about twelve hours. Caution must be exercised, however, about withdrawing food if the disturbance is due to proteolytic organisms. If there is excessive vomiting, food should be withdrawn entirely and the stomach washed out with a solution of bicarbonate of soda. The hyperpyrexia is best treated by the use of cold externally. It is seldom advisable to give the coal-tar products to infants to reduce the temperature. Bromide of soda, in doses of from five to ten grains, by the mouth, may be given for restlessness and excitement. It may be combined with one or two grains of chloral hydrate. It is useless to give drugs by enema in this condition as they are almost never retained. Small doses of morphine subcutaneously may be necessary. If the fontanelle is full, a lumbar puncture will often give relief. Prostration and collapse are to be treated as when they occur in other conditions. It must be remembered, however, that all forms of treatment weaken and exhaust the baby. The baby should be disturbed as little as possible. Alcohol is contraindicated when these conditions are associated with vasomotor paralysis and lowering of the blood pressure. Adrenalin is of some value, but must be given subcutaneously or intravenously. Strychnia is in general the most useful of the stimulants, while caffein and camphor are the best quick stimulants.

Discussion.

Dr. Irving M. Snow, Buffalo: Of late years there has been a steady fall in the infantile death rate and the writer is convinced that this most happy change, is due to the widespread of knowledge due to such papers as Dr. Morse has just read.

Nevertheless several points may be emphasized.

The writer believes that disturbances of digestion in infancy,—vomiting, diarrhea, fever, emaciation, are more often due to congenital weakness of constitution, disturbed function or metabolism, than to infection or organic changes. Often the whole trouble is a lowered digestive power for fats and carbohydrates.

The injury to the baby's digestion can usually be estimated, when attempts at feeding are made.

One child rapidly improves on a suitable food mixture; another can only be kept free of vomiting or diarrhea by a food much below his physiologic need.

A baby disturbed by small increases in food is in a most serious condition. On the other hand, many patients are made worse by injurious treatment, abuse of laxatives, which certainly empty the intestines, but which may cause vomiting, irritation, hypersecretion of mucus and rapid emaciation.

Especially dangerous is the employment of long and repeated periods of starvation on tea, water or thin cereal gruels.

While it is of obvious advantage to rest the digestive functions and to clear out the stomach and intestines, this can usually be effected by giving water or tea for six or twelve hours, seldom longer, unless the fever, vomiting and diarrhea are unusually persistent.

If, as is often the case, the sick baby is under weight, with a chronic disturbance of digestion, starvation is a dangerous remedy, resulting in a terrific drop in weight, and a permanent weakening of digestion.

.Food, assimilated before the hunger period may cause vomiting and diarrhea afterward.

After a tea or water period, and an attempt at feeding, a second hunger period is a severe traumatism to nutrition.

It is better to take chances on a suitable food, and not be too critical in occasional vomiting, or the color and consistency of the stools.

The power of digesting fats is often lessened, but this fat injury is frequently due to poor intestinal function from fermentation of carbohydrates; a change of sugar from sugar of milk or cane sugar to dextro-maltose will often restore the power of assimilating fats.

In diarrheal cases, the frequent mucus stools are due to irritation and rapid peristalsis from fermentation; a substitution of cane or malt sugar for sugar of milk may result in rapid improvement.

The difficult digestion of casein is a myth. A successful food mixture in a diarrhea is dextro-maltose and skim milk, at first dilute to be quickly strengthened.

Albumen milk and dextro-maltose is of high nutritive value; it is free from salt and fermentable whey; seldom causes vomiting or frequent stools.

A thin, delicate baby may thus be quickly given a nutritious food.

The technique is simple and important. To clear the intestines by a tea period of a few hours, and to administer the albumen milk at first in small frequent doses, to be rapidly increased. After a few weeks the baby should be gradually put on a mixture of milk and dextro-maltose.

Lastly, human milk is the best of all curative foods.

In rare cases of severe intoxication or fat injury, it may disagree.

It should be tried early in bad cases of food vomiting, and in persistent diarrhea which resist our usual diet, etc.

It may be given in a bottle diluted, used exclusively or for two or three feedings per day; even a few ounces daily will arrest emaciation and aid in the digestion of other food mixtures. Breast milk may be procured anywhere, by persistent search.

The fate of the baby depends:

1. On its constitutional vigor of digestion. A serious congenital weakness may exist.

2. On avoidance of injurious treatment, laxatives, bowel washes, too much starvation, and underfeeding.

3. On removing the baby from prolonged summer heat.

4. Lastly, on skill in feeding with dextro-maltose with albumen milk or skim milk, or breast milk.

In treating a baby with serious disturbance of nutrition the physician is advised to be very patient, to use well tried foods, and not to make too many changes.

Dr. T. Wood Clarke, Utica: Dr. Morse's paper is a masterly discussion on the subject. He says that there is never a lack of hydrochloric acid or gastric and intestinal ferment. In this I believe he is correct, but in certain cases of vomiting curds in children there is a hyperacidity. It is true of these that sodium citrate acts well in certain cases.

Dr. Douglas P. Arnold, Buffalo: There is no better way of dealing with the digestive disturbances of the artificially fed infant than to prevent these disturbances. There is no surer way to prevent these disturbances than to keep the child away from artificial feeding. This especially applies to the first three months of life, when the digestive tolerance is most easily overstepped. Thus the importance of mothers' milk as a prophylaxis to disturbances of nutrition cannot be too greatly emphasized, because it is the highest tolerated of all infant foods, and if disturbances do occur, most are due either to poor technique or bad constitution of the child. Neither of these should lead to weaning, with its consequent dangers.

Professor Finkelstein's classification of digestive disturbances has been pretty generally accepted, and it is interesting to see how easily the cases fall into these groups. Thus the largest group, or the pure alimentary disturbances, including: disturbance of balance, dyspepsia intoxication and decomposition, are clinically well worked out and treatment well defined.

The other group, or infectious group, is also of prime importance. I do not refer to the enteral group, which has been in the past years overmagnified, but the parenteral infections (grippe, colds, pyelitis, etc.), which secondarily cause digestive disturbances.

Modern experimentation and clinical experience go to show that pathologic fermentation is not merely secondary in the roll it plays but primary. It is well known how pathologic fermentation can be changed by dietetic means to putrification, that fermentation and resulting disturbances can be caused by feeding substances which further fermentative processes (concentrated salts, especially sodium and potassium and a fermentable carbohydrate such as lactose), and that this can be negatived by feeding a high proteid as casein and relatively high calcium. This has been amply proven by the fine results obtained (in this class of cases) with Eiweiss milk. The overstepped food tolerance follows the initial cell injury due to this fermentation. The proteid, if finely divided, seldom causes disturbance, because an excess is excreted and this excess only helps to increase the alkalinity of the gut track, with resulting solid stools.

How can we reconcile the different methods of treatment? As Heubner says, "it is not what you feed but knowing what you feed and how to use it." In other words, it is understanding the principles, for instance: understanding the use and abuse of hunger, when to starve, what cases we must not starve, what cases we dare starve, and how long, as gleaned from the child's constitution, previous history and present illness. We must also realize the danger of parenteral infection, thus we should be just as shocked by finding a coughing child in our wards as a case of scarlet fever.

Let us not, as one man would have it, send all our bad nutritional cases back home where they developed their condition (for complete supervision is impossible), but rather improve our hospital technique in the line of individual rooms or stalls, small wards, entrance quarantine, careful isolation, and individual care, then and only then will the hospital dangers be minimized and we can keep our little patients with safety at least for a time.

Let us bend our efforts toward learning something more of water and salt metabolism (water binding power and ionization), water loss and salt loss with resulting demineralization and acidosis, also the complex chemical studies in intermediate cell metabolism,. not forgetting the clinical end or the child itself.

In the meantime let us not criticise too severely another for his different opinions. This broad vision of the subject is something I have always heard Dr. Morse possessed. I thoroughly enjoyed his paper.

THE SPINAL MANIFESTATIONS OF SYPHILIS.*

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THE part which has been assigned to me in this discussion is a consideration of the spinal manifestations of syphilis, and I wish to confine my remarks to the consideration of two topics, (1) the pathological varieties of syphilitic manifestation in connection with the spinal cord, and (2) the diagnosis of the various clinical types presented by these different pathological conditions.

I wish to state, however, that in my experience syphilitic manifestations in the spinal cord are much less frequent than syphilitic manifestations in the brain. So rare are they, I would venture to say from a considerable clinical experience that we see twenty cases of cerebral syphilis, for every one case that we see of spinal syphilis, and this statement is borne out by the testimony of such authorities as Nonné and Larkin.

I. The Pathology of Spinal Syphilis.

The pathological conditions which are found in the spinal manifestations of syphilis may be sharply distinguished, in accordance with the suggestion of Henry Head, of London, (see Brain, 1914), into two great classes:

1. The Meningitic Vascular Lesions.
2. The Degenerative Lesions.

1. The Meningitic Vascular Lesions are considered together because of the fact that when the meninges are implicated, the vessels almost uniformly participate in the lesion, and when the vessels are primarily diseased, the meninges are almost uniformly found to be infiltrated with cells or the subject of syphilitic exudations, and hence while a sharp distinction may be made pathologically in a very few cases, the combination of the two lesions is so common as to warrant their consideration together.

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* Read at the Annual Meeting of the Medical Society of the State of New York at Buffalo, April 28, 1915.

(a) The Meningitic Vascular Lesions are characterized by the infiltration of the meninges by small cells and the production of so-called gummy deposits, all of which is probably a secondary result of irritation, produced by the spirochæta pallida, located in the meshes of the meninges. As a result of these changes, we have the production of new cells and masses, causing a thickening of the covering of the spinal cord and of the prolongation of this covering upon the nerve roots and various deposits along the surface of the cord, involving the nerve roots and cauda equina. In an extreme manifestation a condition may be produced in which the cord is actually surrounded by a thick casing of new tissue, such as that pictured by Bottiger (*Archiv fur Psychiatrie*, Vol. 26, page 649), and from this extreme type on the one hand, there are gradations down to the condition in which merely an occasional mucilaginous spot is found here and there upon the cord, or around the nerve roots.

The dura mater as well as the pia mater may be involved in this pathological process, and it seems probable that in the majority of cases of so-called pachymeningitis cervicalis and pachymeningitis lumbaris, the underlying condition productive of these states is syphilis.

Localized production of gummy material in the form of a tumor is a comparative rarity in the list of spinal cord tumors, and yet it may not be omitted from mention in connection with the meningitic lesions.

(b) In the blood vessels of the spinal cord, the thickening of the walls necessarily leads to a diminution in the calibre of the vessel, and to an obstruction to the natural flow of blood, and this manifests itself in the nervous tissue, either by a condition of anemia, with a low grade of malnutrition, or by an active thrombosis in the vessels, productive of more or less extensive and irregularly distributed areas of softening, and giving rise to the symptoms of disseminated or transverse myelitis.

2. The second great type of pathological lesion due to syphilis in the spinal cord, and termed the Degenerative Type by Head, has for its most notable example tabes or locomotor ataxia, and also is the underlying condition in Erb's spinal syphilis or spastic paraplegia. It is now supposed that the direct effect of the spirochæta upon the nerve cells and the nerve fibres of the sensory and motor tracts in the nervous system is to produce a direct degeneration in these parts, which might readily be called a parenchymatous inflammation, as distinguished from the other type of interstitial inflammation. Whether the direct action of the spirochæta is upon the cells within the posterior spinal-ganglia cells which give origin to the sensory fibres entering the spinal cord, and thus produce a degeneration of all those fibres which are extraneous in their origin—and it is well known that it is to these fibres alone that the lesion in tabes is confined—or whether the spirochæta produce an irritation of the meninges at the point of entry of the spinal nerve roots, thus causing a localized thickening of the meninges and a strangulation of the roots, as affirmed by Nageotte, may be left for the pathologist to decide in the future. A similar discussion is still rife in regard to the degeneration occurring in the lateral tracts of the cord in Erb's spinal syphilis, for in some cases it appears evident that the degeneration in these tracts is due to an involvement of the tracts directly, there being no concurrent vascular or meningitic lesions, while in other cases the degeneration is evidently secondary to a lack of nutrition in the lateral tracts, caused by an anemia of the cord, due to a vascular disease in the smaller blood vessels which enter the cord from the lateral columns, there being in these cases a well-marked sclerosis of the periphery of the cord, and so-called circular myelitis.

Whether a direct degenerative process of a syphilitic nature may occur in the motor cells of the anterior grav horns of the spinal cord, leading to a progressive muscular atrophy or localized forms of muscular atrophy or various types of supposed dystrophy, is still a matter of discussion.

II. The Clinical Manifestations of Spinal Syphilis.

With the facts of pathology thus clearly before the mind, it is quite evident that the clinical manifestations of syphilis will be quite easily classified into three (3) different categories. We will have:

1. The symptoms due to syphilitic meningitis.
2. The symptoms due to syphilitic softening from vascular disease.
3. The symptoms due to degenerative lesions, namely locomotor ataxia and lateral sclerosis.

1. In the cases of syphilitic meningitis, whether it be pachymeningitis or leptomeningitis, or localized gummy exudations within the meninges, we have symptoms of compression of the spinal cord and of the nerve roots, shown by pain, and later anesthesia, referable to the periphery of the body, corresponding therefore to the part of the body related to the particular level of the spinal cord or nerve root which is involved in the lesion, and also localized palsies in the muscles, which receive their nerve supply from the nerve root implicated in the lesion. It is evident that the lesion being irregular in its distribution, the location of the pain, anesthesia or muscular weakness will be irregular and possibly widely disseminated, or possibly closely localized to one part. In addition to these symptoms we have also the secondary symptoms of compression of the spinal cord at some level, and the consequent interference with impulses passing through that level from the parts below, thus

giving rise to the phenomena of a transverse myelitis, namely an exaggeration of the reflexes, a loss of control of the sphincters, a partial anesthesia and in some cases a distinct girdle sensation. In all of these cases of meningeal affection, pain in the spine, stiffness and rigidity of the movements of the back and discomfort on any change of position are marked symptoms.

2. In the case of softening of the cord from syphilitic vascular disease, we have the ordinary picture presented by a transverse myelitis. Here, in sharp contrast to the other two clinical manifestations of spinal syphilis, we have a sudden onset of the symptoms with a total disability in the parts below the seat of the lesion. Usually such lesions are in the dorsal region of the cord, and in consequence we have a sudden paralysis of both legs with loss of control of the bladder and sphincters, very marked exaggeration of the tendon reflexes and a more or less complete anesthesia to touch, temperature and pain, and of muscular sense up to the level of the lesion. If the point is limited to the lower part of the lumbar enlargement of the cord, the weakness is confined to the muscles below the knees, and the anesthesia is much more marked on the backs of the thighs and legs than it is upon the front. If the lesion involves the cervical region of the cord, symptoms appear in the arms as well as in the legs and body, and the exact level can be accurately determined by the distribution of the anesthesia in the arms, in accordance with the well-known diagrams of the sensory relations of the various spinal segments.

The prognosis in this type of case is much more serious than in either of the other clinical manifestations, for a rapid termination is not usual, on account of the development of bedsores and cystitis, and a recovery from a state of softening of the cord is not to be expected, even though the anti-syphilitic treatment might eventually absorb exudation within the blood vessels which had caused the arrest of blood to the parts.

3. The symptoms due to degenerative lesions may be divided into two types, (a) The Sensory Type, and (b) The Motor Type.

A. It is needless to recount the various symptoms produced by locomotor ataxia, as they are familiar to every one present. It may be well, however, to state that a diagnosis of locomotor ataxia should never be made on the basis of the occurrence of lightning pains or crises, gastric or intestinal or laryngeal alone. It is only when one or more of the three characteristic physical signs of locomtor ataxia are present, namely: The Argyll-Robertson pupil, the loss of knee-jerk and the swaying with the eyes closed (the Romberg symptom), that a positive diagnosis of locomotor ataxia may be reached. Anesthesia of the trunk is a symptom of an objective character not uncommonly overlooked which may appear early, and which is particularly frequent in connection with gastric crises. Several cases which I have seen, where the supposed lesion was a catarrh of the stomach, with neuralgia of the abdomen, have turned out upon examination to be locomotor ataxia in an early stage, with gastric crises and anesthesia of the trunk, and loss or diminution of one knee-jerk as the symptoms leading to the diagnosis.

The degenerative type of optic atrophy, as a precursor to the spinal symptoms, has been already alluded to. In a long series of cases of locomotor ataxia, an occasional case has been seen where bladder disturbance and acute ataxic gait have preceded by many months the ordinary pains which commonly usher in the disease. An interesting article might be written on the unusual forms of onset in locomotor ataxia.

B. The motor manifestations of degenerative disease of the spinal cord are seen in the ordinary condition of lateral sclerosis—gradually advancing stiffness and rigidity in the legs, with difficulty of movement, not amounting to paralysis, a scraping of the ball of the foot in walking, spontaneous cramps and tremors of the legs, and a very marked increase of the reflexes, with an early appearance of ankle clonus and Babinski reflex, are the characteristics of this type. These cases advance slowly for two or three years, and then appear to come to a standstill. I have a patient suffering from this condition whose symptoms have not made any progress during the last fifteen years, and Erb has mentioned a case where such symptoms have remained for eighteen years. The tendency, therefore, in these cases appears to be a spontaneous arrest in the extent of the degeneration, it being practically limited to the pyramidal tracts of the spinal cord. Such a spontaneous arrest is not infrequent also in locomotor ataxia, for I have many patients under my observation at present whose histories go back eighteen and twenty years, and yet in whom there has been no marked progress or advance in the course of the disease during that time or increase in the symptoms.

This tendency to spontaneous arrest in both of these degenerative diseases may be ascribed to measures tending to increase the general nutrition of the nervous system and of the body. Too great stress must not, therefore, be laid upon any particular remedy advocated in the treatment of locomotor ataxia or lateral sclerosis. The enthusiastic advocates of the application of galvanism to the spine between the years of 1880 and 1890—the enthusiastic advocates of the treatment by suspension between the years 1890 and 1895—the enthusiastic advocates of the use of hydrotherapy and spinal douches between 1895 and 1905—the treatment by arsenic and chloride of aluminum between the years of 1905 and 1912, are now succeeded by the enthusiastic advocates of intra-spinous injections of salvarsan.

The cautious physician will give due weight to every method of treatment suggested, and may be permitted to try all methods in the hope of relieving the individual patient, but he should not pin his faith too closely to any one method, and he should remember that nature often accomplishes unaided more than he with his efforts can attain.

THE RADICAL OPERATION FOR CERVICAL CANCER WITH THE REPORT OF FORTY CASES.*

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An indication for a more radical oparation in the treatment of cervical cancer than the usual vaginal or abdominal hysterectomy is shown in the large percentage of recurrence after the former operations. The so-called recurrence of cancer is rarely a true one, but is nearly always a continuance of a growth not entirely removed; and the implantation of cancer at the time of operation into tissue not previously infected, while it may occur, is probably infrequent. The appearance of the so-called recurrence in the tissues about the vaginal vault, after hysterectomy, naturally suggests that it was there before the operation, and subsequently increased in size.

A careful study of the tissue which has been removed by the radical operation and is not removed by usual hysterectomy demonstrates that cancer is present in this tissue in a large percentage of the cases. It is usually invaded either in the form of growth by continuity or by metastases to small lymph nodes. Kundrat (*Arch. f. Gyn.*, 1903, LXIX, 355-409), working in Wertheim's clinics was one of the first to show this. Influenced by Kundrat's work I published (*Am. Jour. of Obs.*, Vol. LIV, No. 4, 1906) the result of a careful study of the parametrium in twenty-seven specimens removed at Dr. Kelly's Clinic at the Johns Hopkins Hospital. In these twenty-seven specimens the parametrium, that is, the tissue which is not removed by the usual hysterectomy but is removed by the more radical operation, was found involved by cancer in seventeen instances, eight times by direct extension alone, either *en masse* or in the form of threadlike processes, three times by metastases in the small lymph nodes of the parametrium without any evidences of a direct extension beyond the growth, and in six cases both forms of invasion were present. Of these twenty-seven cases some of the pelvic lymph nodes were removed in nineteen, and cancer was found in one or more nodes in nine of these.

The indications for this operation are evident as shown both by the poor results of less extensive operations, and also by the fact that cancer is found in tissues removed by this operation which was not removed by the former. The justification for its use can come only from its results. It is a more serious operation than the vaginal or abdominal hysterectomy and is therefore attended with a higher primary mortality. By it more advanced cases can be operated upon than by former operations; but these advanced cases increase the operative mortality and those who survive the operation are more apt to die of recurrence than earlier ones, and this in turn detracts from the percentage of cures. As a result of these and other factors the real estimation of the value of the operation cannot come from the comparison of statistics alone, but mainly from the experience of those who have thoroughly tried it.

Ries and Clark in this country were the first to advocate a more radical operation for cancer of the cervix, but Wertheim through his large amount of clinical material—675 cases in fifteen years—his careful study of the material removed, and his remote and late results, has done more than any other one man to develop it and justify its use.

The radical operation as it exists today consists in the freeing of the ureters and bladder and the wide excision of the parametrium thus made possible, for this is the tissue first invaded by the growth in the form of direct extension or metastases. The lymph nodes about the iliac vessels and sides of the pelvis are removed if they are enlarged or hard, and the condition of the patient should warrant. This latter procedure is of necessity incomplete, for it is impossible to remove all lymph nodes which may be infected.

During the last ten years I have operated upon forty cases of cancer of the cervix by what may be called a modified Wertheim operation, as it was his publications which first interested me in the subject. The cases which I operated upon prior to this time through the courtesy of Dr. Kelly at the Johns Hopkins Hospital are not included in this report.

As the result of a careful study of this subject, both from the anatomical, pathological and clinical sides, I have adopted certain steps in the operation which have been of great value to me, and for that reason I wish to refer to them without giving a detailed description of the operation.

The Local Treatment of the Growth Prior to Hysterectomy.

The object of such treatment varies with the individual case or group of cases. In one group the operator desires to clean up the cervix as thoroughly as possible in order to minimize the dangers of infection at the time of operation should the cervix be accidentally torn, and on cutting across the vagina prior to the removal of the uterus.

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* Read at the Annual Meeting of the Medical Society of the State of New York at Buffalo, April 28, 1915.

In another group the patient is so run down from the loss of blood that it seems best to attempt to check this in order that the condition may improve before operating. In still another group of cases, the preliminary removal of a large amount of the local growth, however this may be accomplished, may so improve the local condition as "to render inoperative cases operative, and operative ones easier to remove."

I have not had any experience with X-rays or radium in this phase of the work. I have tried preliminary curettage, followed by acetone or by the application of heat, using soldering irons not heated too hot. I have had the best results with curettage and the application of heat under nitrous oxide anesthesia. If it is done for the purpose of removing infected material, the hysterectomy should follow as soon as possible, that is, before there is an opportunity for re-infecting the material left behind with bacteria. If the object of the surgeon is to improve the condition of the patient, at least two, or possibly three or four weeks should elapse before the major operation, the great problem being to keep the cervix clean.

While I realize the value of this form of treatment in certain cases, I think it is unnecessary in the majority if care is exercised in cutting across the vagina, as will be described later. I use it only when there is a large tumor mass protruding from or filling the cervix, or for the purpose of stopping the bleeding in order to improve the condition of the patient.

The Question of the Preliminary Catheterization of the Ureters at the Time of the Operation.

This has been of value in the development of pelvic operations in the hands of several operators, and it has been particularly used in hysterectomy for cervical cancer because the ureters have been injured in this operation more frequently than in all other pelvic operations combined. I believe it is an unnecessary procedure in this operation if one will expose the ureters at the onset and if the operator is familiar with the anatomy of the pelvis.

A Discussion of Certain Phases of the Operation.

My own experience has been only with ether as an anesthetic. The bladder is catheterized while the patient is going under the anesthetic, and often a rectal tube is passed. It seems almost unnecessary to mention this, but it is very important that the bladder and rectum should be empty so as to have as much room as possible at the time of the operation. I use a moderately high rather than an extreme Trendelenberg posture. A sufficient large incision is made in the median line, extending down to the symphysis in order to get as much room as possible where it is needed most. A half inch or an inch in this lower angle is worth more than two or three times that amount in the upper. The pelvic contents are exposed and the intestines held back by gauze tampons.

The exact extent of the growth should be determined before proceeding with the operation. I believe that this is a very important step, for if I had used better judgment at this time and had refused to attempt the impracticable my percentage of cures of those surviving the operation would have been just as great and the primary mortality would have been reduced from seven to two. Five of the seven patients who have died should not have been operated upon. I believe that posterior and lateral extension of the disease which fixes the cervix and cannot be palpated around, hydro-ureter and extensive metastases are contra-indications for operation. The primary mortality is high in this group, and the growth has recurred in all that I operated upon who have survived the operation.

The object of the operation is to free the lower end of the ureters, the bladder and the rectum in order to draw them to one side so that they may not be injured and also to enable the operator to obtain the widest possible excision of the tissues about the cervix. This is the tissue which is first involved, both by direct extension of the disease and also by metastases. The wide excision of the tissues about the uterus above the level of the internal os is of very little importance for they are rarely involved in an operable (curable) case. The body of the uterus, the tubes and ovaries are also rarely involved. I have never found either the tubes or ovaries involved, and the body only in cases so far advanced that they should not have been operated upon, and that very rarely. The body of the uterus, tubes and ovaries are removed together with the cervix, not because the procedure is of any great curative value but mainly for technical reasons.

Exposure of the Ureters Above the Parametrium.

This is done to locate the ureter, expose the retroperitoneal tissues, pelvic lymph nodes and enable the operator to ligate the uterine artery at its origin.

An incision is made through the peritoneum lining the side of the pelvis, beginning at a point just below the ovarian vessels and continuing across the pelvis to the side of the uterus below the ovarian ligament. This pocket of peritoneum is freed by blunt dissection, using gauze over the finger or in forceps. The ovarian vessels are ligated and cut, and also the round ligament and anterior layer of the broad ligament down to the bladder. This increases the exposure of the retroperitoneal structures. The uterus is drawn to one side and the peritoneal flap above the uterus is further freed from the side of the pelvis by blunt dissection until the ureter is exposed attached to this flap. The portion of the ureter, attached to this flap and situated above the parametrium, should not be freed from the peritoneum because it increases the chances of ureteral necrosis and is not of any assistance. By following the ureter down to the parametrium the uterine vessels are next exposed—coming from the sides of the pelvis and crossing the ureter.

Ligation of the Uterine Vessels.

The main lymph channels from the cervix accompanying these vessels and small lymph nodes are found in these channels. These lymph nodes represent the first line of defense against the spread of cancer which may have gained access to the lymph channels and these nodes may thus prevent its spread to the lymph nodes along the iliac vessels. I have often found cancer in these nodes but have never found it free in the lymph channels. If cancer gains access to a channel and is free it is apparently carried to the nearest lymph node where it may be checked, that node acting as a filter. For a further discussion of this subject see article by author on the study of the parametrium previously mentioned.

I believe that the uterine vessels should be ligated twice (with catgut) at their origin, and cut between the ligatures, and the distal portion removed with the uterus so as to include the accompanying lymphatics. If the uterine vessels are ligated over the ureter or between it and the cervix as is often done, the greater portion of this tissue is not removed.

I do not think that anything is gained by ligating the internal iliac artery and it must injure the blood supply of the ureter and bladder, thus predisposing them to necrosis and infection.

Freeing the Uterus and Cervix Posteriorly.

This has to be done at some time, and if done now it may enable the operator to lift the uterus and cervix higher out of the plevis. The lower ends of the ureters and bladder are thus carried with the uterus and can be the more easily freed. To do this an incision is made with dissecting scissors, through the posterior layer of the broad ligament, beginning at the uterine end of the transverse incision through the peritoneum (first described), and continuing along the side of the uterus and cervix, across the utero-sacral ligament and the cul-de-sac, carefully avoiding the ureter which can be seen. By blunt dissecting the rectum is freed from the vagina and by hooking the forefinger under the cervix between the vagina and rectum the uterus may often be lifted up. In certain cases this helps free the uterus and one is able to lift it further out of the pelvis; in others, with marked lateral extension it has very little or no effect on the mobility of the uterus, but it saves doing it later in the operation.

Freeing the Bladder From the Cervix.

The object is to free the bladder from the cervix with the widest possible margin from the growth.

The reflection of the vesical peritoneum over the uterus is incised transversely. If the bladder is not adherent it can be easily pushed downward by blunt dissecting, beginning in the mid line and working laterally, thus avoiding the large veins on either side of the cervix. If the bladder is adherent, one had better deliberately excise a portion of the adherent bladder wall for it can be readily repaired than by blunt dissection to tear the bladder and probably leave cancer behind. Sometimes a button-hole incision in the bladder just above its attachment to the cervix will enable the operator to pass his forefinger into the bladder and by palpation assist in dissecting the bladder free. In freeing the bladder care must be taken not to make too much traction on the uterus otherwise a cervix extensively invaded by the cancer may be torn across and the field of operation infected. In very adherent cases it is often best to free the parametrial portion of the ureters before attempting to dissect the lower attachment of the bladder from the cervix.

Freeing the Parametrial Portion of the Ureters.

While the ureters above the parametrium are exposed early in the operation they should not be dissected from the peritoneal flap to which they are attached. The only portion of the ureters which it is neccessary to entirely free is that which passes through the parametrium along the cervix to the bladder.

The purpose is two fold: First to draw the ureters to one side so as to obtain a wide excision of the parametrium below them, which is frequently involved by a direct extension of the growth; and, secondly, to do this with the least possible injury to these ducts. As I have shown (*The Johns Hopkins Hospital Bulletin,* 1904, XV, No. 157) this portion of the ureter is surrounded by a sheath derived from the tissues through which it passes and the ureter must be freed from this tissue (sheath) with care. The ureter is first exposed at its entrance into the parametrium. The ends of the uterine vessels with surrounding tissue which have been ligated and cut are clamped and dissected from the ureter. The partially freed ureter may be lifted up by a button hook, piece of tape or gauze, and by dissecting scissors is freed from the surrounding tissue (its sheath) down to the bladder. In early cases the ureters and bladder can easly be dissected free. In borderline cases it is more difficult and this final dissection may have to be reserved until after the parametrium has been dissected from the pelvis. If hydro-ureter is present it is best to resect the lower end of the ureters and not attempt to free it, and this procedure is probably the safest when dissection is difficult, especially in women past the menopause. I believe in these the dangers of ureteral necrosis are greater than in younger women with a better pelvic blood supply. As I have stated before I have never been able to cure a patient when the disease was so far advanced as to cause a hydro-ureter.

The Wide Excision of the Parametrium.

In the portion of the parametrium accompanying the uterine artery and situated above the ureter metastases are frequently found; in the portion below the ureters, often the most difficult to remove, the direct invasion is most apt to occur and for this reason it is the part which should be removed.

In favorable cases this does not present any great difficulty. The large veins lateral to the parametrium must be ligated or clamped first by long clamps (those designed by Wertheim are especially good), and after cutting between the clamp and the cervix ligated. In this way the cervix and upper portion of the vagina are freed and ready to be removed.

In "borderline" cases this part of the operation presents great difficulties on account of the control of large veins deep down in the pelvis lateral to the cervix and upper portion of the vagina. These difficulties may be overcome as described above, or if the bladder is freed laterally just as though one planned to remove the bladder with the upper portion of the vagina, the uterus and lower ends of the ureters in one mass these veins can be better exposed and ligated. It may be necessary to do this before attempting to free the ureters at their entrance into the bladder.

Cutting Across the Vagina.

This must be done with the least possible chance of introducing infection into the field of operation from the contents of the cervix and vagina.

The parametrium and upper portion of the vagina have been dissected free to a point below the growth as determined by palpation. The vagina is now clamped across below the cervix and growth by a special rightangle clamp, thus completely closing the vagina. The table is lowered and the vagina below the clamp is thoroughly cleansed by a vaginal douche and wiped dry with gauze. After this is done the Trendelenberg posture is resumed and the vagina cut across below the clamp, using a cautery, knife or scissors. The cut edge is clamped as it is cut in order to prevent its retraction. The entire specimen is thus removed with the minimum chance of infecting the field of operation.

Removal of the Pelvic Lymph Nodes.

From a pathological standpoint this should be the first step in the operation, and the nodes along the iliac vessels and sides of the pelvis should be removed *en masse* with the uterus in order to remove the lymph channels between the uterus and the nodes, for along the channels are small nodes which may contain metastases. These channels are partially removed in removing the uterine vessels. We realize that possibly in as high as a third or a half of the operable cases metastases are present in some of the pelvic lymph nodes and that if these nodes are not removed cancer has been left in the pelvis.

We also know that if we remove the lymph nodes as a routine procedure that this will increase the primary mortality and some will die from the operation in whom there were no metastases and who might have lived and been cured had the lymph nodes not been removed. We likewise must realize that it is very difficult—almost impossible—to remove all lymph nodes which may be infected, and, therefore, at best their removal is incomplete, and that patients in whom metastases are found in some of the lymph nodes are rarely cured—only one in my series (ten years since the operation). In other words their removal is mainly of prognostic and rarely of curative value. I believe that it is of enough curative value to remove the accessible ones in selective cases and those are the ones most frequently found involved (possibly because they are the ones most frequently removed), still that remains to be proven.

It is my practice to carefully explore the sides of the pelvis after the uterus has been removed and to remove the lymphatics if I find any enlarged or hard nodes and the condition of the patient warrants. I have found that hard ones, even though not enlarged, are much more apt to contain metastases than much larger ones which are not hard—still it is impossible to definitely decide whether or not metastases are present by palpating them. Some of the pelvic lymph nodes were removed in seventeen of the forty cases, and metastases were found in ten of these. In two of these cases the removal of the pelvic lymph nodes was responsible for the death of the patient. I regret that I have not made it more of a routine procedure to remove them irrespective of their size or consistency in the favorable cases and had not operated upon some of the unfavorable ones with metastases.

Covering Raw Areas.

The raw areas are covered with peritoneum, and I always drain through the vagina with narrow gauze, being careful that the gauze shall not come in contact with the ureters.

Closure of Abdominal Incision.

This is closed in layers and as often the healing is slow in these patients and the incision easily separated on vomiting, coughing or sneezing I make it a point to introduce three to five figure eight silkworm gut sutures, which are tied over a folded tampon placed on the abdominal incision. The lower loop of the suture approximates the recti muscles and their sheath. These sutures are left in place for at least two weeks and sometimes three, *i. e.*, the patient may be up and about a week before they are removed.

Post-Operative Treatment.

This depends upon the individual case. If the condition of the patient is good at the close of the operation, the treatment is similar to that following any abdominal hysterectomy in which there is the possibility of pelvic infection. My routine procedure is to elevate the head of the bed, give nothing by mouth the first twenty-four hours, tap water by rectum, morphia in as small doses as necessary to keep the patient quiet, warmth, fresh air, and sand bags to the lower abdomen to splint the latter.

If in a condition of shock, the treatment is as follows: Bed flat or foot elevated, from ten to twenty pounds of pressure to the lower abdomen by means of sand bags, infusions of normal saline solutions, but no other medication; otherwise treatment is as when shock is not present.

I am very enthusiastic over the apparent beneficial effect following the use of sand bags. I have been using them for nearly ten years, not only in cases of shock, but also when I fear the possibility of post-operative peritonitis where I wish to splint the abdomen and keep it quiet. These bags are made of ticking, about eleven inches long and five to six wide. They are loosely filled with from four to five pounds of sand. They are placed on the abdomen after the patient returns from the operating room, before she comes out of the anesthetic. To splint the abdomen and exert moderate pressure two bags were used, placed transversely across the abdomen, one above the other. Sometimes they are placed lengthwise on either side of the abdominal incision, but they remain in place better if placed transversely. If more pressure is desired, as in marked shock, the number of bags may be increased. I rarely employ more than four bags, but have used as many as eight. These bags are worn as long as the condition of the patient indicates their use, and are gradually removed. The majority of patients not only tolerate them, but even like them, and will often insist upon wearing one or two of them much longer than necessary. They are especially appreciated by the patient in coughing and vomiting, as they support the abdomen. They are contraindicated if abdominal distention is present, due to tympanitis. The bladder is catheterized every eight hours, and an enema of oil and glycerine is usually given on the morning of the third day. No definite rule is followed about cathartics. Water freely by mouth and gradually liquid nourishment is given after twenty-four hours, or as soon after that as it can be tolerated.

The rest of the post-operative cases treatment is similar to that following other operative cases.

The gauze drains are started on the sixth or eighth day and completely removed by the ninth or tenth. The silkworm gut sutures, splinting the abdominal incision and holding the dressings in place, are not removed until the end of two weeks, or even later. In some of these cases, especially those with lower resistance, the abdominal incision heals very slowly, and can be easily separated on coughing or vomiting unless firmly splinted.

Primary Mortality.

Seven of the forty patients died as a result of the operation, *i. e.*, 17½ per cent. In defense of the operation itself, these seven cases who died must be analyzed.

In five of the seven, although they died from the shock of the operation, the real cause of death was due to lack of judgment in attempting to operate on patients who should not have been operated upon.

No. 1.—The lateral and anterior extension of growth was so great that a portion of the bladder was excised, and even then the entire growth was not apparently removed.

No. 2.—Extensive primary growth with metastases to the pelvic and lumbar lymph nodes. All enlarged nodes, including some lumbar nodes, were removed.

No. 3.—Extensive primary growth, involving bladder and compressing lower ends of the ureters on both sides, causing bilateral hydroureter. The trigone of the bladder and the lower ends of three ureters (double ureter on one side), were resected and implanted in the bladder.

No. 4.—The primary growth was small, but a metastasis to a lymph node to the right external iliac vein was so adherent to the vein that a portion of the latter was excised, together with the metastasis. The patient died eight hours after the operation.

No. 5.—The primary growth involved the posterior bladder wall and compressed the lower end of the right ureter, causing a marked hydroureter. A portion of the bladder and the lower end of the right ureter was excised with the growth.

In two of those who died the operation was apparently justifiable. In the first one the bladder wall was involved, and a portion of the latter excised. Patient did not rally from the operation; died on the fourth day.

In the second, the primary growth was extensive, involving the bladder. A portion of the latter was excised. Patient died suddenly on the eighth day. Cause of death was not apparent at autopsy.

My own experience has convinced me that a local growth so extensive as to cause hydroureter or to render its complete removal impractical should not be operated upon. Furthermore, the presence of extensive metastases to the iliac and lower lumbar lymph nodes, even though all can apparently be removed, contraindicates an operation. All of these cases whom I have operated upon and who have survived the operation have died from recurrence.

There are certain borderline cases which may apparently sometimes be cured. If the disease extends anteriorly the bladder wall soon becomes involved and often relatively early in the course of the disease. While the lateral and posterior extension of cancer are difficult to handle, and also very difficult to cure, because the extension in this direction is in the course of the main lymph channels, the anterior extension of the disease remains local for a longer time and is much more favorable for a cure, and technically is much easier to remove. Occasionally patients with metastases to the accessible pelvic lymph nodes may be cured.

Only two of the seven patients dying from the operation should have been operated upon, and in the other five conditions were evident at the onset which contraindicated an operation, and while these five cases all died from the shock of the operation, the real cause of death, as I stated, was due to lack of judgment in undertaking it.

It is obvious that with better judgment and the perfection of the details of the operation that the primary mortality may be considerably reduced. This is evident in these forty cases. The primary mortality in the first twenty was five; in the second twenty, two—less than one-half of the first. The last two cases operated upon died, but prior to these two there were twenty consecutive operations without a death. Analyses of the cases operated upon in these groups show that there has been but very little improvement in judgment, for some who have survived the operation should not have been operated upon, as shown by the subsequent histories of the cases and as evidenced by the conditions present at the time of the operation. The real cause of the lower mortality in the last twenty cases is due to improvement of operative technique and shortening of the duration of the operation. In the last fifteen cases, the longest time taken for the operation, including the closing of the abdominal incision, was two and a quarter hours, and in four cases the operation was finished within an hour. The average duration of the operation in these fifteen cases was about one and a half hours. I did not keep a record of the duration of the first twenty-five operations, but from memory would say that the average time for the first ten was at least three hours, or twice that of the last fifteen, and gradually this time was lessened. With a similar improvement in judgment, I believe that the operative mortality should be but very little greater than that of the average pan-hysterectomy.

Post-Operative Complications.

These complications include all that may follow any pan-hysterectomy, and in addition certain special ones which are liable to result from trauma to the bladder and ureters, and injury to the blood supply of the same. These structures, as well as the large raw areas exposed by the operation, are also liable to become infected. Aside from the injury to the ureters and bladder necessary to free these structures, unintentional injury, such as clamping, ligating and cutting the ureters, as well as unintentional incision of the bladder, is more apt to occur in these operations than in all other pelvic operations combined. It is for the purpose of avoiding these injuries that the lower ends of the ureters and bladder are freed before attempting to remove the uterus and its parametrium.

Ureteral fistula from accidental injury to the ureters or from necrosis, due to interference of the blood supply, is likely to happen if the ureter is clamped, ligated or cut, or there is difficulty in freeing it, thus injuring its blood supply. Vesico-vaginal fistula from similar causes may also occur. Cystitis and renal infection from trauma and infection are also likely complications. I believe that post-operative cystitis occurred in a large percentage of the thirty-three patients surviving the operation. I cannot state the exact number—in only three or four was it severe enough to require special treatment. Only one vesico-vaginal fistula resulted, and that two weeks after the operation, and was therefore probably due to necrosis. This was closed later by operation. Two uretero-vaginal fistulæ developed at the end of the second week, undoubtedly due to necrosis. In each case there was so much difficulty in freeing the lower end of the ureter at the time of the operation that I wished I had resected it and implanted it in the bladder. One fistula healed spontaneously in about three months' time; the patient died later from recurrence. The second fistula was cured by dissecting the ureter free and implanting it in the bladder five months after the operation. This patient is living and is apparently free from cancer; operation two years ago. For further consideration of ureteral fistulæ see article by author in *Surg. Gyn. and Obs.*, May, 1909.

A certain percentage of the ureteral fistula is sure to follow if there is difficulty in freeing the lower ends of the ureters, and I think it is more likely to occur in elderly women, as the blood supply of the pelvis is not as good as in younger women, and the blood vessels are more easily injured. The ages of the two patients in which fistula developed were sixty and sixty-three years. The other post-operative complications in this series were of minor nature and of no special importance.

Ultimate Results.

Fifteen patients were operated upon from five to ten years ago. Of these four died from the operation; in three of these the growth was so extensive that an operation was contraindicated, as has already been discussed. Of the eleven surviving the operation, seven are living and apparently free from cancer at the present time. The percentage of apparent cures is 63+ per cent. Had all the fifteen survived the operation the percentage of cures would have been at least 46+ per cent.

The seven cases apparently cured:

No. 1. Para, aged forty-six; operated upon in 1905; inverting type of cancer of the portio-vaginalis; metastases in iliac lymph node; operative prognosis apparently bad due to the metastases.

No. 2. Nullipara, aged forty; operated upon in 1905; inverting type of cancer, arising within the cervical canal; portion of outer wall of the bladder removed with the growth, and cervix torn in removing the uterus; operative prognosis bad.

No. 3. Para, aged forty-three; operated upon in 1906; inverting type of cancer of portio-vaginalis; extensive primary growth, but apparently confined to the cervix; operative prognosis fair.

No. 4. Para, aged fifty-three; operation in 1907; inverting type of cancer arising within the cervix; operative prognosis good.

No. 5. Para, aged forty-four; operation in 1907; inverting type of cancer of portio-vaginalis; operative prognosis good.

No. 6. Para, aged forty-seven; operation in 1908; inverting type of cancer of the portio-vaginalis; operative prognosis good.

No. 7. Para, aged fifty-one; operation in 1908; large everting type of cancer of portio-vaginalis; operative prognosis good.

The Four Patients Dying From Recurrence.

No. 1. Nullipara, aged thirty-two; operation in 1905; inverting type of cancer of portio-vaginalis; operative prognosis apparently good; recurrence and death within three years. Autopsy: death apparently due to renal insufficiency from compression of the ureters by metastases in the iliac lymph nodes; no evidence of recurrence in vaginal vault.

No. 2. Nullipara, aged thirty; operation in 1906; inverting type of cancer of portio-vaginalis; operative prognosis apparently good; recurrence and death within three years. Autopsy: death apparently as above from compression of the ureters by metastases in the iliac lymph nodes, and also a small recurrence in the posterior wall of the bladder.

No. 3. Para, aged sixty; operation in 1908; inverting type of portio-vaginalis involving the bladder; operative prognosis bad; recurrence and death within two years. Autopsy: cause of death apparently as above from compression of the ureters by extensive recurrence along the sides of the pelvis and in the vaginal vault.

No. 4. Nullipara, aged forty-two; operation in 1909; inverting type of carcinoma of the portio-vaginalis; operative prognosis good; recurrence and death within two years. Autopsy: cause of death apparently as in previous cases from compression of the ureters by metastases in pelvic lymph nodes; no evidence of recurrence in the vaginal vault.

These eleven cases are too few in number from which to draw any definite conclusion, but they show what appeared to be unfavorable cases may sometimes be cured and it is unsafe to make a favorable prognosis in an apparently early case. A study of the entire forty cases show that the apparently unfavorable cases which are sometimes cured are confined to certain groups; as a large primary growth confined to the cervix or with very little involvement of the surrounding tissue; those with an anterior extension of the disease which is more apt to remain local for a longer period of time than the posterior and lateral; and metastases which are limited to the accessible lymph nodes. There is difficulty in deciding upon the extent of the involvement of the tissues around the cervix, because the reaction of the surrounding tissue to the invasion of cancer varies greatly in different cases. In one the inflammatory action may be great, thus making the involvement by cancer appear much greater than it really is; and in another it is silght, minimizing the presence of cancer. I do not know of any way of definitely deciding this point. The presence of hydro-ureter and definite fixation of the cervix, especially if the patient has pain, contraindicates operation. Uncertainty exists in detecting the presence of cancer in lymph nodes at operation. A large node may not contain cancer, and a small one may. In my experience large, soft nodes have rarely been malignant; and hard lymph nodes, no matter if they are not enlarged, have usually been malignant, and always so if adherent. The recurrence apparently in favorable cases, and especially in lymph nodes along the iliac vessels without the presence of cancer in the vaginal vault, emphasizes that the removal of the accessible lymph nodes is indicated in these cases where it can be easily done and the dangers are slight.

The indications for this operation are evident. It has technically been sufficiently developed to render it reasonably safe in suitable cases and is already justified in the hands of those who have thoroughly tried it. It remains for a more general adoption, but this should be done only by those who have specially prepared themselves to do it properly.

THE NEW CONCEPTION OF DIABETES AND ITS TREATMENT.*

By JOHN L. HEFFRON, M.D.,

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AT the meeting of the American Medical Association in 1914, Dr. Frederick M. Allen gave a summary of his studies on diabetes in animals and deduced some conclusions concerning the application of the facts elicited to the question of diabetes in man. The address impressed one as giving practically a new conception of diabetes and a definite treatment that would inspire a new interest in both physician and patient. Briefly stated, Dr. Allen's studies showed that:

1. Glycosuria could be produced in dogs and cats by removing from seven-eighths to nine-tenths of the pancreas while at the same time leaving the fragment in communication with the pancreatic duct.

2. That the operated animal which had developed glycosuria could be made sugar free and free from acidosis by a complete fast varying from one to several days according to the degree of glycosuria induced and which in turn depended upon the size of the fragment left in situ.

3. That after the fast, the operated animal could be kept sugar free and without acidosis and become active and vigorous, though thin and hungry, on a diet well within its remaining tolerance of food stuffs, and that apparently there was no end to vigorous life under such conditions.

4. That in operated animals kept on a diet which prevented the development of glycosuria and acidosis, the degree of tolerance for carbohydrates and proteids gradually increased so that they could come to assimilate an amount of food which at first had caused the reappearance of glycosuria and acidosis, without the production of such an effect.

5. And, conversely, that an operated animal that had developed glycosuria and by fasting and diet had remained sugar free, if fed in such a way as to cause the constant elimination of a small percentage of sugar, inevitably showed a gradually diminishing tolerance for carbohydrates and proteids and, though first showing an increase in weight, finally died in diabetic coma on a diet which controls, kept under their own powers of tolerance, had gradually come to take without the elimination of any glucose, acetone, or diacetic acid, and which remained vigorous though thin.

6. That the post-mortem appearance of the fragment of pancreas showed changes which bore out the clinical observations, viz., the pancreas remnant of animals in which a greater degree of tolerance had been established and which were killed in vigorous health, showed no degenerative processes whatever; while in those animals which were permitted to die of the diabetes, the pancreas remnant showed typical progressive alterations in the islands of Langerhans "summarized as vacuolation of cytoplasm and loss of granulation, pyknosis of nuclei, loss of cells, and finally disappearance of islands," changes which are practically identical with those sometimes observed in the pancreas of men who have died of diabetes.

The conclusions which were drawn from these studies were that: 1. Diabetes, for practical purposes, may be considered not a disease entity, but the manifestation of a certain degree of failure of the pancreas to perform its normal functions.

Nature is a poor journeyman. There is hardly a person who does not possess some one organ that has been imperfectly made. If the imperfection of the pancreas is great enough, it manifests itself by the development of diabetes in childhood. If it be less, diabetes develops in later life, and if it be least, though positive, diabetes is developed in the latter decades of life together with other signs of a degenerative process.

2. That it is possible to keep a diabetic from glycosuria and ketonuria and vigorous, though under normal body weight, provided he is intelligent and cares enough about life to conform to the necessary rules of the treatment.

3. That our former idea, that a diabetic who is losing weight, though sugar free, is in a position of danger, was wrong. The danger flag is turned around and points to disaster if increase of weight be made the object of attainment rather than persistent freedom from glycosuria.

4. Finally, that the function of the pancreas can be improved if the patient be kept well within his own powers of assimilation, but is diminished and the patient gradually and surely progresses to a relatively early death, if sugar elimination is permitted in a persistent though even in a small quantity.

The treatment based upon these observations has been carried out successfully in a considerable number of cases, and is as follows:

If the case be a severe one, with considerable emaciation, a negative carbohydrate balance and acidosis, the patient is put to bed and a complete fast is established. If the acidosis be marked enough to cause fear of coma, saline and alkalies and water in large quantities are administered. To prevent the waste of tissue alcohol is used, giving the patient 50-250 cc. of whiskey or brandy in twenty-four hours in divided doses. The fast is prolonged until the urine is free from glucose and the acidosis is diminished, and for twenty-four hours longer, during which time the alkalies and the alcohol are diminished, though not stopped entirely. The average length of the fast is three days. The extremes have been two and nine days respectively. The patient is then put on a diet of starchy foods and alkalies are discontinued. Five per cent green vegetables are selected because of their bulk and for the purpose of securing complete freedom from acidosis, and on the first day from ten to forty grammes of carbohydrates are given in four to ten portions. No fat is permitted to be used in the cooking or as a dressing. The second day the quantity of carbohydrates is doubled, if no sugar has appeared. If no sugar appears on the third day, the ration is increased to 100 grammes. The fourth day is made a fast day again with 50 to 200 cc. of whiskey or brandy, after which feeding with vegetables is resumed, the quantity gradually increased, and proteids are gradually added and last of all fats. When the limit of the patient's power of assimilation is determined, the patient is given a diet card on which the daily quantity of proteid and carbohydrate is prescribed in grammes and the balance of the diet, expressed in calories, is to be made up of fats. The urine, collected in four periods, arranged so as to include the periods in which meals are digested, viz.: from 6:30 A. M. to 10:30 A. M.; 10:30 A. M. to 4:30 P. M.; 4:30 P. M. to 10:30 P. M.; 10:30 P. M. to 6:30 A. M., is examined every day and the patient is never allowed so much food as to cause the appearance of glycosuria. The fast may be required several times in the determination of the patient's power of assimilation.

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* Read before the Syracuse Academy of Medicine, December 21, 1915.

In cases less severe the process is less exacting, but must be conducted on exactly the same principles. Proceeding in this way and with exact knowledge every day that the patient is kept within his own powers of assimilation, many cases of diabetes may so far improve as to become vigorous and active and to tolerate a diet sufficiently varied to fairly satisfy the patient, though they may never be brought to tolerate sugars nor much of the high percentage starchy foods.

This treatment has been carried out with conspicuous success in the hospital of the Rockefeller Institute under Dr. Allen's personal supervision by Dr. Stillman, and they are now engaged in compiling the history of the cases treated, which is to be published in the early spring. Several clinicians have published the results of their use of this treatment in hospitals under close and accurate supervision, the most noteworthy of which are those of Joslyn and Christian. Reports of the use of this treatment in private practice have not come to my notice, and for that reason I venture to give the results observed in the cases which have been put upon this treatment since June, 1914.

The total number of cases treated is twenty-one, nine of whom were men and twelve women. The age of one is eleven, one was twenty-six, five were between thirty and forty, three between forty and fifty, nine between fifty and sixty, one sixty-two and one eighty. The present condition of seventeen is known. There have been three deaths, and the fate of a fourth is unknown. One of the fatal cases was a man who came to me in the last stage with various complications, and who did not carry out directions. Another was a woman of fifty-nine who had gangrene of two toes of one foot when first seen. She became quickly sugar free, the gangrene sloughed out and the toes healed. She became too active and too confident and then neglectful, and, months later, after a long walk on a hot day, gangrene developed on the other foot and advanced rapidly. The leg was amputated, but she died in coma on the sixth day after operation. Her blood pressure was extremely high throughout the period of observation, averaging 230 m.m. systolic. The urine showed evidence of change in the kidney.

The other fatal case was in a woman fifty-one years old who had been for some time under treatment for chronic enteritis. She was seen in the office on April, 1915, and reported herself much better and went into the country. Her urine up to this time had never shown glycosuria, nor had she manifested any of the symptoms usually present in diabetes except prugigo pudendi. I was called to see her at the hotel where she resided August 3, 1915, and found her in a condition of marked acidosis. The urine contained 8 per cent of sugar. She said she had been perfectly well in the country, and had eaten heartily of many things which she never before had been able to eat without diarrhea. This improvement continued up to about a month before seeing her. She was removed to the Hospital of the Good Shepherd, put upon the usual treatment for acidosis, with fasting, according to the plan heretofore outlined. The sugar disappeared but the acidosis deepened into coma, and she died on the thirteenth day after first seeing her.

Of the seventeen cases concerning whom I know the facts, five are now under frequent observation, and four of them are severe cases. Three remain sugar free on a diet limited to not more than 100 grammes of carbohydrate given as green vegetables low in percentage of starch, and fifty to seventy-five grammes protein. Biscuits made of washed bran with no nutritive value are used to carry fats and are much enjoyed by all patients and replace breads.

A fourth one of this group is particularly interesting. She is a woman of fifty-five, who has been under observation since June, 1912. She was not a severe case, was a very active woman, and resented the control of her diet advised, and could not be persuaded to exert the careful observation of herself essential for success until at a consultation August 23, 1915, she showed me a breast in which was a hard nodule involving the nipple which was evidently carcinomatous. An operation was advised, and she was told she must carry out the treatment of her diabetes accurately in order to prepare herself for the necessary operation. After some little delay, she agreed to accept the advice and became a model patient. The urine cleared up, the operation was performed successfully, she has remained sugar free, the process of healing was prompt, and she is now up and about in good condition.

The fifth of those now under individual observation is a new case, a lad of eleven, four feet eight, weighing sixty-nine pounds, from a family of diabetics, who came under observation on the seventeenth of December, 1915. During the period of twenty-four hours he excreted eighty fluid ounces, 2025 cc. urine, very pale, 1035, with 5 per cent glucose, but free from acetone and diacetic acid. His fast began at once. His urine during the first forty-eight hours of the fast diminished to a total of eighty fluid ounces. On January 31st it was 50 ounces, sugar free and without acetone or diacetic acid. Previous to the introduction of this treatment it would have been common to give a prognosis of an early fatality, but since a recent visit to the hospital of the Rockefeller Institute, where I saw many children, some even younger than he, and several with a history of having been in a much more extreme condition than is this boy, I am encouraged to undertake the management of this case with expectations of a successful result, if, as would appear, this boy and his parents are intelligent enough to be taught to carry out the treatment.

The other twelve of these seventeen known cases are remaining sugar free and are active and vigorous, and come in at only occasional intervals for advice.

Each patient is taught the fundamental principles here reviewed, and the details of the treatment. The personal examination of the urine of the four periods is taught and is required at first daily and later at irregular periods, but at least as often as once a week continuously. In mild cases the diet is prescribed in domestic measures, and the approximate value in calories is worked out by means of tables published in various places, but now conveniently assembled by Locke in his little book, "Food Values." In severe cases the method employed at the Rockefeller Hospital is carried out. The patient buys a 500 gramme scale, weighs all food raw, ascertains the proportion of carbohydrate, protein and fat by reference to the tables, and, in carrying out a prescription given, composes a diet to equal twenty to thirty calories per kilo in weight. The diet is arranged so that the appearance of sugar shall be the signal of danger, though all foods, as Allen well says, have their dangers. Sugar can be excreted upon an exclusively proteid diet. An excess of fats may determine the condition of acidosis, and some fats, like butter, probably because of its butyric acid, can be less easily tolerated than other fats. Exercise, within the limit of real fatigue, is prescribed. It is found that exercise diminishes the period of fast, and increases the tolerance of carbohydrate. In the fasting period, in severe cases, when it has been necessary to prevent body waste by the use of alcohol, I have preferred pure alcohol diluted, rather than whiskey or brandy, for two reasons: first, because most whiskies and brandies contain some sugar, and, second, because in private practice I have preferred not to tempt the appetites of my patients. Constipation is entirely avoided by the use of the bran biscuits, made by beating up the bran with an egg, salt and water, or by substituting for the egg agar agar when no nutriment is to be furnished in the biscuit. These are good fat carriers.

In the past I have been in the habit of using an extract of the entire pancreas, made by Fairchild Brothers and Foster, and marketed under the name of "Holodin." If the theory of Allen is correct, possibly the addition of this to the treatment may prove helpful. It has not yet been tried out in the Rockefeller Hospital. My own experience with it, in comparison with cases of the same grade without it, is too limited as yet to enable me to give any conclusions of value upon its use.

I am aware that the cases reported are limited in number, and that most of them belong to that period of life at which it has been common to prolong life considerably, even though a small percentage of sugar is daily excreted. But my experience with the Allen treatment has entirely changed my attitude to these cases. In the short time I have had it under trial it has proved much more successful and more stimulative of interest, both to the patient and to myself, than the method hitherto taught. As a result I no longer dread to see a diabetic in the consulting room, but rather welcome him.

PYORRHEA ALVEOLARIS AND SOME MODERN DISCOVERIES REGARDING ITS CAUSES AND TREATMENT.*

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PYORRHEA alveolaris or Riggs' disease was for many years a perennial subject of discussion in dental societies before it attracted the attention of the medical profession to any extent. Its importance as an etiological factor of many systemic diseases has not been appreciated until recent years. It is now well known that a septic mouth may be the cause of affections of the eye, ear, throat, bronchial tubes, lungs, heart, liver, kidneys and other organs of the body.

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* Read at the Annual Meeting of the Medical Society of the State of New York at Buffalo, April 27, 1915.

According to Osler, pyorrhea alveolaris is almost constantly present after middle life. Head states his experience indicates that it starts between the ages of eight and ten years, and becomes perceptible between the ages of forty and fifty. Haskin says that cases are found in countless numbers—in the rich as well as in the poor. Ross says that it is exceedingly common and that there are few diseases as far-reaching in their effects upon the human organism. Black claims that 95 per cent of persons who apply for dental services have present in their mouths the factor of peridental inflammation. Bass, who in cooperation with Johns, corroborated the findings of Barrett and Smith and says that pyorrhea dentalis and alveolaris is practically a universal disease; all people have it sooner or later. Barrett during a recent personal interview informed me that certain facts in his possession led him to believe that possibly amebic pyorrhea may have a special geographic distribution. Hecker describes many varieties of pyorrhea: diabetic, intestinal nephritic, infective, gastro-intestinal toxemic, presenile, senile, resulting from trauma, resulting from chemical irritants, resulting from mechanical irritants, resulting from thermal irritants, and resulting from bacteriological irritants.

The recent discoveries in regard to the etiology and treatment of so-called Riggs' disease, are therefore of sufficient importance to warrant their earnest consideration by the medical as well as the dental profession.

History.—Pyorrhea alveolaris is not a modern disease. Galen (131 A. D.) is supposed to have referred to the condition we now call pyorrhea alveolaris when he said, "The lack of nutrition makes the teeth weak and brittle, and excess of nutrition excites a kind of inflammation similar to that of the softer parts." It is said that a study of the skulls in the Hunterian Museum, which includes 5,000 specimens, shows that it was a disease of the early Egyptians. It seems to have prevailed during the decadence of the Roman Empire and to have been universal among civilized nations from very early times. Ambroise Pare (1550) also described this condition. Leeuwenhoek (1675) discovered in the tartar of the teeth minute living organisms and thus became the pioneer in this field of work. The regularity with which these "animalcules" were demonstrated in tartar, also in intestinal contents and in well water aroused in the minds of the more advanced physicians of the time a suspicion as to the possible relationship of these minute forms with disease and with contagion. Our present knowledge of infection and immunity is a development of Leeuwenhoek's discoveries. The same is true in regard to Jennerian vaccination, antityphoid vaccination, serum and bacterin therapy, and the more recent discoveries of Barrett and Smith of the University of Pennsylvania, whose findings in regard to the microbic origin of pyorrhea alveolaris are now exciting the attention of the civilized world.

Etiology.—Microbic invasion of the tissues of the mouth is now considered the determining etiological factor. The lowered resistance to microbic invasion caused by luxury or impoverished diet, or by enervating habits, are evidently predisposing factors. Diabetes, syphilis, Bright's disease, gout, intestinal stasis and consequent auto-intoxication, have all been enumerated among the causes for this disease. However, pyorrhea alveolaris may be considered as a condition rather than a disease, and the microbic invasion and systemic conditions associated therewith may be regarded as links in a chain arranged in the form of a vicious circle.

The microbes associated with pyorrhea alveolaris are of two kinds, namely, protozoa and bacteria. Bacterial infection as an etiological factor of pyorrhea alveolaris has been recognized for a number of years. It is only within the last year that the part played by the protozoa has attained importance in the etiology of this disease.

The bacteria and protozoa associated with pyorrhea alveolaris live with us as commensals or messmates, subsisting upon particles of food, cast-off epithelium and other dead waste matter, and therefore usually manifest a saprophytic existence. It is only when they acquire the power of living at the expense of the tissues that they become disease-producing parasites. Whenever the vitality of the tissues is lower than the potency of the enzymes or digestive ferments produced by the microbes, infection occurs; or possibly a peculiarly virulent micro-organism may find its way into the mouth and start the infection.

Sajous, with whom I conversed on the subject, explains the meaning of loss of "vitality of the tissues" which entails diminished resistance to infection, by attributing loss of resistance to deficient activity of the ductless glands, which is now recognized by various experimenters and clinicians, sustain oxidation and the auto-protective functions of the body. Sajous also holds that the efficient oxidation which the internal secretions of these glands insure by sustaining the physiological rate of tissue metabolism, works hand in hand with the bactericidal and antitoxic activity of these secretions to keep in abeyance the pathogenicity of presumably harmless organisms. In other words, they protect the tissue against assault and destruction while keeping inimical germs harmless.

Miller (1890) published the first work of importance on the subject entitled "Micro-organisms of the Human Mouth." He found streptococci, staphylococci and pneumococci, also micrococcus tetragenous, bacillus pyocyaneus, hay bacillus and various yeasts and moulds.

Goadby commenced the serious study of the bacteriology of the mouth, especially in relation to pyorrhea alveolaris, in 1904. In 1907 he gave the Erasmus Wilson Lecture, taking as his subject "Pyorrhea Alveolaris." This lecture was published in the *Lancet* (London), March 9, 1907. His next important contribution "Vaccine Treatment of Early Cases of Pyorrhea Alveolaris," appeared in the *Proceedings of the Royal Society of Medicine,* Volume III (1909-10). Goadby found in a total of 70 cases: Streptococcus, 19 times; bacillus necrosis dentalis, 14 times; micrococcus catarrhalis, 23 times; B. septus, 15 times; staphylococcus aureus, 12 times; saccharomyces, 5 times; pneumococcus, 5 times; micrococcus citreus granulosis, 6 times. In 1908 he reported finding in two cases streptococcus brevis, staphylococcus albus and the saccharomyces. In 1909 he found bacillus fusiformis (an anærobe) and three varieties of spirochetes.

The next papers of importance were those of Eyre and Payne, their findings were published in the 1909 *Proceedings of the Royal Society of Medicine.* The contributions by Mayou, Beebe, Whittle, Best, Sims, Williams, Logan, and other investigators added to the interest in the subject.

Medalia (1913) published in the *Dental Cosmos* a paper entitled "Chronic Alveolar Osteomyelitis (Pyorrhea Alveolaris), Its Causes and Treatment With Vaccine." He found in 115 cases: Pneumococcus in chains and staphylococcus, 67 cases; pneumococcus, staphylococcus and streptococcus, 10 cases; pneumococcus and streptococcus in chains, 3 cases; pneumococcus in chains and micrococcus catarrhalis, 1 case; staphylococcus, 2 cases; staphylococcus and streptococcus in chains, 1 case; staphylococcus and M. catarrhalis, 2 cases.

Leary, Cummins and Collins confirmed the findings of previous investigators regarding the prominence of bacteria commonly found in the mouth as etiological factors in Riggs' disease.

One of the most important contributions to our knowledge of the bacteriology of pyorrhea alveolaris is that of Dr. Claude P. Brown, working in the Mulford Laboratories, in co-operation with Dr. A. P. Hitchens. The material for bacteriological examination was collected by Dr. Joseph Head, of Philadelphia, from pyorrheal pockets in the mouths of patients under treatment for the disease. The importance of this paper is due to the fact that the studies were made by competent bacteriologists with wide experience, working in co-operation with a clinician of wide experience, and affording knowledge concerning the character of the bacterial flora existing as an etiological factor in pyorrhea alveolaris, among the wealthier class of the community.

Dr. Brown's paper was published in the *New York Medical Journal* for December 20, 1913. The results obtained by him in the study of cultures from pyorrheal pockets in 48 cases are carefully tabulated. The several organisms were found the following number of times: Staphylococcus aureus, 6; staphylococcus albus, 9; sarcina, 3; micrococcus tetragenous, 9; Gram negative cocci, 49; Gram negative bacilli, 17; bacillus influenza (group), 19; streptococcus (non-hemolytic), 28; streptococcus, (hemolytic), 30; streptococcus viridans, 23; pneumococcus, 27; diplococci, 13; diphtheroid, 22; yeast, 1; leptothrix, 3; bacillus, 1.

The technic and cultural methods followed are carefully described. Tables also show in detail the results of the bacteriological study of the cases. These tables show the charteristics of cultures of the different kinds of bacteria found in the pockets of infection, as for example the characteristics of cultures of the bacillus influenza (hemophilic group), the characteristics of diphtheroids, also of the Gram negative cocci and of the Gram negative bacilli. In his conclusions Brown says that while a large number of organisms were isolated in his studies, he and his associates were unable to attribute to any one of them an etiologic rôle in pyorrhea alveolaris. To what extent bacteria can be regarded as etiologic factors in the production of this disease remains yet to be determined. As Brown truly states, before drawing conclusions a study of the possible association and rôle of anærobic bacteria is necessary. Further details in relation to the researches of these investigators appear under the head of "Treatment of Pyorrhea Alveolaris."

Protozoa in the Mouth a Cause of Pyorrhea Alveolaris.—Renewed interest was excited in the subject by a paper read by M. T. Barrett, before the Pennsylvania State Dental Society at its annual meeting, Philadelphia, July 1, 1914, and published in the *Dental Cosmos* for August, same year. The paper was a preliminary report of work undertaken and in course of prosecution by the author in collaboration with Allen J. Smith, Professor of Pathology in the School of Medicine of the University of Pennsylvania. It is entitled "The Protozoa of the Mouth in Relation to Pyorrhea Alveolaris." The report is founded upon forty-six cases of suppurative affections of the gums and pericemental tissue, in all of which without a single exception, parasitic amebæ were descovered in active motility.

While confident of the actual pathogenic importance of these parasites from their uniformity of occurrence and distribution and from the evidence of their ingestion of leucocytes and erythrocytes, the authors did not feel justified in attempting inoculation experiments. They applied another test for pathogenicity which seemed conclusive. Resource was had to the use of emetine a specific against the endameba of dysentery. Accordingly thirteen cases of pyorrhea alveolaris were treated locally by injecting into the pus pockets one-half of one per cent of emetine hydrochloride. In several of these thirteen cases, the pus disappeared completely to gross inspection in twenty-four hours after application. This result was attained in all the cases after three daily local treatments. Further details regarding the researches of these investigators will be found in this paper under the head "Treatment."

Drs. C. C. Bass and F. M. Johns, Tulane University College of Medicine, confirmed the findings of Barrett and Smith. Their first paper on the subject was published in the *New Orleans Medical and Surgical Journal,* November, 1914 (Volume 67, No. 5). It was entitled "The Specific Cause and the Prompt Specific Cure of Pyorrhea Alveolaris or Riggs' Disease." Another contribution by the same authors appeared in the *Journal of the American Medical Association,* February 13, 1915, entitled "Pyorrhea Dentalis and Alveolaris—Specific Cause and Treatment."

The Same Protozoa Found in the Tonsils.—An important paper relating to the endamebic infection was presented before the Philadelphia Pathological Society in the early part of October, 1914, by Smith, Middleton and Barrett, and published in the *Journal of the American Medical Association,* November 14, 1914.

In this paper the authors announced their discovery of the same endameba in the tonsils observed in cases of chronic hypertrophic tonsilitis, previously observed by Barrett and Smith in infected mouth tissues. Emphasis was given in this paper to the probable relationship between amebic infection occurring in the mouth and tonsils with various systemic complications such as arthritis, obscure anemias and gastro-intestinal diseases.

Pyorrhea Alveolaris as a Cause of Systemic Disease.—Hunter in his epoch-making paper entitled "Oral Sepsis as a Cause of Disease," published in the *British Medical Journal* (1900), called attention to the fact *that it is not the absence of teeth, but the presence of sepsis;* that it is *not dental defects,* but *septic effects;* that it is not *defective mastication,* but the *effective sepsis associated with such dental defects* or often present in conditions of gingivitis apart from such defects, that are responsible for the ill-health associated with bad mouths.

Osler, Cummins, Murphy, Knopf, Collier, Billings, Rosenow, Mayo, Hunter, Collins, Eyre and Payne, and many other authorities lay stress upon the danger of systemic infection from septic conditions of the oral cavity, and consider the disease sufficiently widespread and injurious to warn the profession in regard to it as a serious menace to public health.

Knopf has written extensively on the question of diseased teeth, and their effect on tuberculosis, and shows the possibility of their being one of the chief causes of infection. Oral sepsis is also said to be responsible for cases of pharyngeal abscess, septicemia, acute, subacute and chronic, also for diseases of the ear, including mastoid disease, diseases of the eustachian tube, etc.

In a symposium on "Mouth Infection as a Source of Systemic Disease" occurring at the meeting of the American Medical Association, at Atlantic City, in 1914, Dr. Frank Billings said that "alveolar focal infection may be the dominant factor in the production of systemic disease, of which malignant endocarditis, chronic arthritis and myositis are examples." E. C. Rosenow said that infections of the mouth are so common in patients suffering from arthritis, neuritis, appendicitis, ulcer of the stomach and cholecystitis, goiter, etc., that their direct etiologic rôle can scarcely be questioned.

C. H. Mayo said root abscesses and pus pockets are often the source of acute and chronic rheumatism. "The chronic infection develop anaphylaxis from the constant poisoning and the results are shown in asthmas, urticaria, etc."

Craig said that the presence of pus in a body cavity has long been considered a finding of the utmost importance, of even grave significance, to which an almost innumerable number of symptoms may be attributed. Until recently, however, the existence of pus around the teeth has been lightly regarded, and often rejected as a possible cause of serious systemic disorder. We may well ask, Is the alveolar pus pocket the depot of origin of brain abscess in those cases, the origin of which has been unexplained? A purulent process in the posterior urethra, in the vagina or in the tonsil, is considered ample source for any arthritis, neuritis or endocarditis which may subsequently develop. Are we not then justified in considering a septic condition around the teeth a source of various disturbed states of health, no other cause existing?

Treatment.—In the treatment of pyorrhea alveolaris the objects are first to destroy infecting micro-organisms. Second, to get rid of the pockets of infection and prevent reinfection, and third, to restore the tissues to a normal condition as far as possible; fourth, to meet the indications arising from systemic infection.

The first micro-organism to be destroyed is the endameba buccalis, which may be removed from the field as an etiological factor by the use of ipecac or its alkaloid emetine as an amebicide, preferably in the form of emetine hydrochloride.

Use of Ipecac and Emetine.—Ipecac or emetine may be used either locally or internally or both. Bass recommends a solution of one-half of one per cent for the treatment of the pockets of infection. Vedder found that emetine kills the endamebæ when diluted one hundred thousand times, and Bass recommends its dilution with alcohol about ten times. One drop of this should be applied to a wet tooth brush and be used for washing the teeth; or two or three drops of the fluid extract may be added to half a glass of water and the mouth thoroughly rinsed with it at night before retiring. The endamebæ contained in the pockets of infection are destroyed by injecting one-half of one per cent emetine hydrochloride solution into the pockets with a hypodermic syringe. Since the endamebæ are at times found in the tissues the use of emetine hydrochloride hypodermically is recommended by Bass.

Barrett and Smith inform me that they obtain their best results by the local use of emetine, and it is only where there is a wider distribution of the parasites as in the tonsils, or where systemic complication exist, that the hypodermic use of the drug is advisable. Bass and Johns are strong advocates of the hypodermic employment of emetine. They find that one-half a grain up to three grains of emetine given hypodermically is sufficient. According to these investigators the endamebæ disappeared from the lesions following from one to three days of hypodermatic treatment in more than 90 per cent of all cases. They disappeared in 99 per cent following six days of treatment. They state that all cases should be treated at least three days and none need more than six. Usually one-half a grain daily for three to six days, depending upon the case and the stage of the disease, is all that is required to accomplish the purpose.

For local application higher concentrations than one-half of one per cent of the emetine hydrochloride is likely to provoke inflammatory reactions in the gum. Care should also be taken to use a neutral solution of the salt, as free hydrochloric acid is apt to be irritant to the gums and adjacent surfaces; the solution should also be isotonic with the blood, for it may prove irritating if used either in stronger or weaker solutions.

The solution is introduced into the pyorrhea pockets with an ordinary hypodermic syringe with a straight or special curved dental needle, as needed, so as to gain access to all parts of the pockets. Dr. Barrett particularly calls attention to the way of using the needle. The point should be rounded as it may pass along the root of the tooth to the bottom of the pocket, merely engaging with the wall, and be carried about to all of its parts without penetrating the inner walls of the pocket of infection. Each pocket in turn is filled with the emetine hydrochloride solution, and Barrett believes it to be good practice to apply the solution also to parts which, according to gross examination, are not involved—as into the interdental spaces and around fixed appliances. "Treatments which thus include all recognizable pockets, and especially parts under suspicion, should be repeated daily for at least five days, and thereafter every other day until about ten treatments as a total have been made, as a general rule." He also recommends that "microscopic examination of scrapings from the pockets should be made from time to time for persisting endamebæ as the treatment progresses, and this, together with the general appearance of the lesions, will determine the appropriate duration of treatment. In some of the less marked and less chronic cases, a total of five or six applications or even less may be sufficient, while in the more stubborn instances treatment must be continued even longer than above indicated."

Every unhealed lesion must be regarded as a source of reinfection which will certainly promptly occur just as long as endamebæ are being constantly thrown off from the pockets of infection.

"Coincident with the disappearance of the endamebæ, the soreness, pain or discomfort, and the amount of pus formed, rapidly decreases. The tendency to bleed from slight trauma usually ceases within forty-eight hours, and in almost all cases the patient recognizes and feels confident of the beneficial effects within a few days."

As already stated, pyorrhea alveolaris is a mixed infection in which bacteria as well as endamebæ take part. While it is true that the destruction of the endamebæ and the treatment of the pockets of infection by operative procedures may result in cure of the patient's condition, yet the bacterial infection may continue, requiring the local use of bactericides and the necessity for the employment of bacterin therapy.

The Use of Ammonium Bifluoride.—According to Head, one of the best bactericides for use in the treatment of pyorrhea alveolaris is a 20 per cent solution of bifluoride of ammonium, with 10 per cent free hydrofluoric acid. Head says that this solution is not only very effectual as a bactericide, but it also is an excellent solvent for the softening of tartar. It is commonly believed that the accumulation of tartar aids in separating the gums from the teeth, and in the production of pockets of infection. To what extent the tartar accumulation is an etiological factor in pyorrhea is possibly an open question. However, there can be no question that it should be removed by the dentist. Head says that the ammonium bifluoride solution not only destroys the bacteria and softens the tartar so that it may be readily removed by the scalers, but stimulates the tissue cells so that they form reattachment of the gum to the root, thus causing the disappearance of the pockets of infection, and getting rid of the self-perpetuating foci of infection. After four or five applications one week apart, black scales that have escaped the instrument will sometimes be found floating loose in the pockets of infection so that they can be readily picked out, and finally the root will become as soft as velvet to the touch of the instrument.

Head says that when this stage has been reached it will be found that the scalers cannot be carried as deeply into the pyorrhea pockets as in the beginning. To do so causes pain and a free flow of blood. This indicates that new granulations are forming, and these should not be ruthlessly broken up either by instrumentation or by the injection of the bifluoride into them. If at the end of two or three months of treatment any of the pockets of infection have not entirely healed, they should be re-explored with scalers and the treatment repeated as for a new case. Teeth that have lost more than half of their gum attachment under this treatment have become firm and comfortable to the action of normal mastication.

Bacterin Treatment.—It is doubtless true that in many cases of pyorrhea alveolaris the elimination of the original offenders, aided by proper operative procedures, will enable the tissues to overcome the invading micro-organisms present and once more to establish normal relations. The use of amebicides and bactericides, aided by proper operative procedures cannot be depended upon, however, to cure all cases of pyorrhea alveolaris and to prevent reinfection. The bacterial infection remains to be considered. This infection may have become systemic, as already stated, indicating the use of systemic treatment. The systemic conditions may in certain cases be overcome by the use of bacterins. The objects of the bacterin treatment are to aid nature in eliminating disease-producing bacteria from the tissues after they have become established, and also to prevent disease-producing germs from gaining a foothold in the body.

In discussing the subject of bacterin therapy, it will be interesting to review briefly the preparation of the bacterin and its administration, before considering the theories which underlie its use.

Collection of Material for Preparing Bacterial Vaccines.—Head's method of obtaining material from pyorrheal pockets for the preparation of bacterins is as follows:

The pocket from which the material is to be obtained is first protected from mouth contamination by a sterile napkin. The gingival margin of the pocket is then washed with sterile cotton dipped in sterile salt solution. The margin of the pockets are slightly seered with an electrocautery so that the gum is distinctly whitened. The root of the tooth adjacent to the margin is thoroughly gone over with the cautery to destroy all extraneous flora of the mouth which may cause contamination. A thin spear of platinum about three one-thousandths of an inch in thickness is then heated to a cherry-red color and plunged into the bottom of the pocket, from which a small amount of blood serum is obtained, together with the material found in the bottom of the pocket. It is particularly essential that this blood serum should be obtained from the wall of the pocket, so that any bacteria lurking within the tissues of the pocket may be secured, as it is presumable that the germs within the walls are most responsible for the disease. The spear should then be drawn directly out without touching any portion of the mouth to prevent contamination; and the material used for preparing the bacterin in the ordinary manner.

Preparing the Bacterin.—The method for preparing the bacterin employed by Dr. Brown, of the Mulford Laboratories, is as follows: The material obtained from the pockets of infection in the manner described is streaked on the surface of slanted blood agar in test tubes. These blood agar cultures are taken to the laboratory as soon as possible. As much of the material as can be removed from the culture medium is then, by means of a sterile platinum loop, carried to a blood agar plate. This is then spread by means of a sterile glass rod or spatula, as suggested by Dr. Hitchens. Without reinoculation this spatula is carried to three plates in succession, so that the organisms are well distributed, thus facilitating the fishing of single colonies. After twenty-four hours in the incubator at 37.5° C. the fishings are made; these are likewise made to blood agar slants. After twenty-four hours' incubation, slides stained by Gram's method are studied microscopically; and when indicated other stains are also used. If necessary for further identification of streptococci and pneumococci, serum dextrose bouillon cultures and animal inoculations are made. The Gram negative bacilli, with the exception of those which will grow on blood agar only, are inoculated into fermentation tubes of bouillon containing various carbohydrates for gas production. Bacilli are studied for motility in hanging drops.

Dr. Brown believes that blood agar is the best medium for isolating the bacteria, but for certain micro-organisms a modified medium and special technic may be necessary. He also states that if evidence is obtained to demonstrate the pathogenicity of bacillus fusiformis in pyorrhea, proper methods for its elimination must be used. Thus far he has not made a study of the anærobic bacteria by the necessary special methods, but is continuing his work along this line.

As stated by Brown:

"The question of selecting the proper bacteria from those isolated in a given case is one susceptible, at this stage in our knowledge, of endless discussion. A definite and final decision cannot now be rendered. Some have started out with the preconceived idea that the cocci only are pathogenic. They have discarded the bacilli present without further consideration. Goadby and others have attempted to pick out the bacteria responsible for the infection by a determination of the opsonic indices to the germs isolated. More recently the complement fixation test has been suggested for the same purpose. Such investigations may be of great scientific interest, but I must question their practical value. Besides increasing out of all proportion the labor required for the preparation of the vaccine, I believe the chances for error both in technic and in interpretating the result obtained are so great that one may safely eliminate any organism present in the specimen. We believe it is better to make a vaccine containing all the different types found, discarding only those obviously non-pathogenic or sporogenic bacteria."

A bacterin for the treatment of pyorrhea alveolaris should contain all the organisms isolated in the given case. Therefore, theoretically an autogenous vaccine should be employed. However, practically a polyvalent stock vaccine will often be found perfectly satisfactory, and thus save the patient the expense and time of an autogenous vaccine.

Autogenous vs. Stock Becterins.—As you all know, we are indebted to Sir Almroth E. Wright for the introduction of bacterin therapy. Contrary to the common belief, Wright in his work at St. Mary's Hospital, London, has from the beginning used both autogenous and stock bacterins. Autogenous bacterins are not considered necessary except when stock bacterins fail, or when any special reason exists for preferring autogenous bacterins. Most of the work at St. Mary's Hospital is therefore conducted with stock bacterins, not with autogenous bacterins, as some would have us believe. The claim that each variety of an infecting organism is absolutely specific to such an extent that no other variety of the same organism is capable when injected into the tissues of stimulating the body cells to form a proteolytic enzyme of sufficient specificity to produce proteolysis is stretching the doctrine of specificity altogether too far. If this claim were true, the use of vaccination against smallpox, rabies and typhoid fever would be absurd. It would also be absurd to use diphtheria antitoxin, tetanus antitoxin, antimeningitis serum and other stock biological products which have proved such wonderful life-savers in modern therapeutics.

In certain cases autogenous bacterins produce satisfactory results after the failure of stock bacterins, but in the large majority of cases the use of stock bacterins is sufficient.

A stock bacterin for the treatment of pyorrhea alveolaris should of course be as polyvalent as possible to meet the requirements of specificity. By polyvalent is meant that the suspension of bacteria contained in a bacterin is of the same species but from many different sources.

Rationale of Action.—A vaccine is a modified disease virus. It is so modified that when it is injected into the tissues, it will not cause infection, but it is capable of stimulating the body cells to form a specific proteolytic enzyme. Subsequent immunity is due to the power thus acquired by the body cells to promptly destroy the smallpox virus when re-exposed to infection. Immunity to typhoid fever is acquired by injecting into the body modified typhoid virus, or in other words, typhoid bacilli, modified in such a manner as to prevent reinfection, but not modified sufficiently to prevent the stimulation of the body cells of the individual injected from producing the specific proteolytic enzyme or ferment having the power of destroying typhoid bacilli. Subsequent immunity to typhoid fever is explained in a similar manner to that relating to smallpox vaccination.

When a bacterin is injected into the body the body cells are stimulated to form the specific proteolytic enzyme already referred to. An excess of the amount required to digest the bacterin injected is produced, which carried by the circulation into the infected area, there aids the tissue cells and phagocytes in their fight against microbial invasion.

When one or more invaders have penetrated the natural defenses of the body and started a colony in the mucous membrane of the mouth, the tissue cells and leucocytes commence to digest the invading micro-organisms with their enzymes and split up the bacterial protein as described by Vaughan. Owing to the lowered vitality of the mouth tissues in a case of pyorrhea alveolaris, the mechanism of immunity is out of repair and incapable of destroying the invaders. The result is destruction of the tissues by the enzymes of the invading microbes. The use of bacterial vaccines stimulates the body cells to produce antibacterial substances which aid the injured tissues in fighting against the invaders.

Assuming that some one or more of the bacteria invading the mouth tissues have been taken up by the circulation and carried to some other part of the body, there to start a new colony causing systemic disease: The use of bacterial vaccines not only aids in the cure of the pyorrhea, but also proves of great value as a therapeutic agent in the treatment of the systemic infection.

Sometimes a marked reaction follows a dose of bacterial vaccines manifest by local soreness, fever, feeling of malaise, and but rarely, a cutaneous eruption. Vaughan teaches that these symptoms are due to the inefficient digestion of the protein molecule, and are caused by the toxic action of the poisonous group, which is set free in large amounts under such circumstances. The importance of securing proper digestion of the bacterial protein injected is therefore apparent.

Sensitized Bacterins (*Vaccines*).—In 1902, Besredka, a noted French scientist, devised a plan for increasing the digestibility of the bacterial protein, and thus to largely overcome the reaction due to the setting free of the poisonous group of the protein molecule. This he accomplished by macerating the bacteria in homologous immune serum, that is, serum from the blood of an animal immunized against the disease by the living bacteria. What occurs when bacteria are macerated in homologous immune serum it is necessary for us to know, in order to understand what is accomplished by this method.

All enzymes or digestive ferments, according to Vaughan, are composed of amboceptor and complement. The function of the amboceptor is to sensitize the protein substance to be digested, thus rendering it susceptible to the lytic or dissolving action of the complement. Normal blood serum has the property of digesting and destroying both living and dead protein substances. This property is possessed only to a limited degree. When an animal is immunized against a certain protein by the injecting of the same into its tissues, or in other ways introducing it into the animal's body, it is found that the power of digesting said protein has been enormously increased. Examination of the blood serum now discloses the fact that this increase is due to the production of a specific amboceptor in large amounts, no increase having occurred in the complement.

When a bacterin is macerated in homologous immune serum for some hours, the amboceptor contained in the serum combines with the bacterial protein, thus rendering it susceptible to immediate and efficient digestion by the body cells when used either for prophylactic or therapeutic application. In other words, when the bacterial protein is presensitized, by macerating with the immune serum, it is prepared for the immediate action of the complement contained in the blood of the individual when it is injected into the body. The digestion by the body cells is immediate, efficient and complete. Only a minimum of poisonous substance is set free by the digestion, and toxic symptoms are rarely manifested. The immunizing group of atoms set free by the disruption of the protein molecule stimulates the body cells to produce a large excess of specific amboceptor, which is at once taken into the circulation, and, when the bacterin is used for the treatment of the disease, sensitizes the invading bacteria and thus enables the complement in the patient's blood to act upon and destroy them speedily.

Sensitized vaccines are of two kinds, namely, sensitized living cultures, so modified by the process of sensitization as to render them incapable of procreation; and sensitized killed cultures. The latter are known as serobacterins. Thus far no way has been discovered to guarantee that living sensitized cultures may not regain their virulence and cause infection. In the opinion of Colonel Leischman of the British Army, and also in the opinion of the Medical Department of our own army, sensitized living cultures are unsafe as articles of commerce, and the United States Government will not issue a license to producers of bacterial vaccines, permitting them to place them on the market. Killed sensitized cultures are not open to this objection, as they cannot regain their viability after it has been destroyed. Yet they retain their power of stimulating the body cells to produce the specific proteolytic enzyme or ferment to which their immunizing power and therapeutic efficiency are due.

Pyorrhea alveolaris is a mixed infection, as we have already noted. Protozoa and bacteria are both present. The use of ipecac or emetine hydrochloride will destroy the protozoa as demonstrated by Barrett and Smith and confirmed by Bass and Johns. The bacterial infection must then be combatted. Five or six principal types of bacteria take part in the infection. The infection may be limited to the tissues of the mouth or there may be one or more foci elsewhere resulting from the extension of the infection. The object of treating pyorrhea alveolaris with bacterial vaccines is to stimulate the body cells to form substances antagonistic to the invading bacteria. For that purpose, either an autogenous vaccine may be employed containing the various germs found in the pockets of infection, or a mixed polyvalent stock vaccine may be used. The latter, for reasons just stated, may preferably be a sensitized vaccine.

It has been truly said that the first dose of a bacterin is the only arbitrary dose. It is the general rule of clinicians to administer from 150 million to 450 million killed bacteria as the initial dose, subsequent doses to be gradually increased. If, following any dose a clinical reaction occurs, characterized by rise in temperature and aggravation of local symptoms, a general malaise, etc., the same or a smaller dose should be given at the next treatment. As a general statement, the intervals between doses are usually from two to four days in acute cases, and from two to seven days in chronic cases. Later in the course of treatment the intervals may be lengthened or shortened according to indications.

Finally, I desire to again call your attention to the fact that pyorrhea alveolaris is a name of a condition rather than a disease—a condition in which local and systemic factors co-operate in reducing the vitality of the patient, and that this reduced vitality enables the infecting organisms taking part in the condition to grow and reproduce at the expense of the patient's tissues. Also the tissues infected are not limited to the tissues of the mouth. Focal infections may exist in any organ of the body as a result of pyorrhea alveolaris, and the existence of such focal infection may be sufficient in its influence to greatly retard the cure of the patient's condition. Therefore, in treating pyorrhea alveolaris, it is necessary not only to use amebicides, bactericides and operative methods, for the purpose of destroying the infecting organisms in the mouth, but also to employ systemic treatment to meet systemic conditions.

THE REPAIR OF COMPLETE LACERATION OF THE FEMALE PERINEUM.*

By CHARLES GARDNER CHILD, Jr., M.D.,
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THERE is no condition caused by child-birth traumatism that is more distressing to the patient than that of fecal incontinence. Most of these cases that come to the gynecologist for repair are ones of long standing, with considerable atrophy of the sphincter muscle amidst much surrounding cicatricial tissue, only too often the result of many futile operations in the past. The operator has thus, not only to restore the function of the anal sphincter, but to do more or less extensive repair work on the neighboring tissues as well.

When a primary repair is done at the time, or shortly after the injury has been sustained, there is little choice of the method to be employed. Whatever operative procedure is adopted, the indications to join the recently severed tissues are plain. Not so, however, where the operation is to be performed after healing has occurred by granulation with a number of years intervening. Here, not only is it necessary to remove the cicatricial tissue, but it is of the utmost importance to recognize and bring together at times widely separated muscle fibres.

To accomplish a satisfactory restoration of the parts to anything like normal will often tax to the limit the patience and ingenuity of the operator, but I know of no branch of plastic surgery more worthy or where earnest study brings greater reward.

A study of the literature on this subjcet for the past fifteen years does not indicate that our ideas regarding technique have very materially crystallized during all this time. Many and varied methods are still advocated that should, by reason of general surgical advance, have long ago been discarded, while those appearing worthy of more extended trial have not received the prominence that I feel they are entitled to.

To my mind the one best method we have today is that advised by Ristine in 1899. Although his operation received the almost immediate approval of many operators at the time it was published, and has since been incorporated in several text-books on gynecology, it still seems to be only slightly known to the general surgical world. I immediately adopted this method when it first came to my attention, and have since used it with such success that I hope you will pardon me when I say that I feel it can hardly be improved upon. Some of the advantages it offers are common to other methods—many advantages it has are unique. At times it has to be slightly modified, as in those cases where the tear extends some distance up the wall of the rectum, but these are few, and it can, as a rule, be made to cover all cases of secondary repair. It is these that I wish particularly to discuss.

The average case of complete perineal tear that comes to us for operation presents a history of fecal incontinence, and shows the remains of the sphincter muscle much atrophied from disuse, with the ends retracted laterally, and buried in cicatricial tissue on either side of the anal opening. In some cases these ends may have been caught in a bridge of cicatricial tissue across the anal opening anteriorly, thus enabling the patient to exert a varying degree of control that may possibly keep her in a fairly comfortable condition. In other cases the sphincter ends are widely retracted, without any central attachment whatever, so that the muscle is unable to functionate in the slightest degree, and the patient is not able even to control solid stools.

In all cases of complete tear, where the laceration has extended up the anterior rectal wall, the subsequent cicatrization so shortens the anterior wall that no operation, except that of Ristine, will lengthen out this shortened wall unless a separate incision is made into the rectum, the subsequent sutering of which introduces a possible source of infection to the wound area.

By Ristine's technique this shortened anterior rectal wall is lengthened out by the retraction into the rectum of a portion of the apron of tissue dissected from the posterior vaginal wall, thus substituting a portion of the posterior vaginal wall for the shortened anterior rectal wall.

Technique of the Operation — Outlining the Area of Denudation.—With the patient in the dorsal position the vagina is retracted laterally with tissue hooks at two points marked by the lowermost caruncle on either side. These two points are then connected by a transverse line of incision running through the highest point on the rectocele, or a point in the middle of the posterior vaginal wall about an inch, or an inch and a half, from the anus. Next the ends of the sphincter muscle are located by the dimples on either side of the anus. Two lines of incision then connect these with the above mentioned caruncle.

Denudation.—The apron of tissue that has just been outlined should consist of mucous membrane and cicatricial tissue, and is now carefully freed by beginning its removal from above downward. In this way normal tissue is entered first, cicatricial last, making the dissection much easier. Usually, as the proper line of cleavage is opened up, the dissection of the apron proceeds with little difficulty until the cicatricial tissue is encountered at the juncture of the vaginal and rectal outlets. Here the greatest care must be taken not to buttonhole the apron, or to injure the rectum. As the margin of the septum between the anal and vaginal openings is approached it will often be found to consist almost entirely of cicatricial tissue requiring the most careful dissection in order to preserve a properly nourished apron. The dissection now proceeds deeper on either side so as to uncover the retracted ends of the sphincter muscle. These are then grasped by traction forceps and the suture inserted. The dissection is now made to disclose the borders of the retracted levator ani muscles on either side. After having carried the dissection down to the ano-vaginal margin, thus freeing the apron described by Ristine, and exposing the borders of the levator ani, the wound is ready to close.

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* Read at the Annual Meeting of the Medical Society of the State of New York at Buffalo, April 28, 1915.

Closure of the Wound.—The apron dissected from the posterior and lateral vaginal walls is now clamped at three points and allowed to hang down over the anus, where it remains until the completion of the operation. The incision in the vagina is closed with a continuous suture of No. 4, 40 day chromic catgut beginning at the apex of the denuded area on the posterior vaginal wall, and continued down to the outlet, thereby bringing the aforementioned caruncula together in the middle line to mark the highest point on the new perineum, as they originally marked the highest point on the old perineum before it was torn.

In uniting the muscles in the perineum the method that I first described in 1913* of figure of eight sutures of large size silkworm gut is used; these are introduced as follows: The first suture is passed through the ends of the sphincter muscle; the free ends are then crossed and introduced in the raw area close to the sheaths of the sphincter, and brought out through the skin on either side, about ¼ inch from the wound margin. These are then clamped, but not tied. In like manner three or four figure of eight silkworm sutures are passed through the edges of the levator ani muscles, crossed and made to include in their second bite all intervening tissue. A thorough irrigation of the wound area is now given, all blood clots that may have formed during the operation are carefully removed, and all bleeding points tied with fine size kangaroo tendon.

Tying the Sutures.—The sutures are now tied in the following manner: Beginning with the one that unites the ends of the sphincter, the free ends are drawn on until the first bite of the figure of eight is tightened sufficiently to bring together the muscle ends within its grasp. It is then tied by a square knot just tight enough to snugly approximate the tissues, which it holds. The remaining sutures uniting the levator muscles, skin and subcuticular tissues, are tied in the same manner. These sutures should never be tied so tightly as to cause cutting or strangulation, and the second knot of each suture should not be tied tight enough to splinter the silkworm, or to interfere with untying it later, should occasion arise. The wound is now completely closed, and if at its summit, the highest point on the perineum, any gaping is present, an extra silkworm suture may be introduced.

A careful survey of the field of operation will now show that the apron of Ristine has already to some extent been drawn up into the rectum, thereby lengthening out the previously shortened anterior rectal wall, thus relieving all tension at the ano-vaginal juncture. A small strip of iodoform gauze is introduced into the vagina to facilitate drainage for the first few days.

Post Operative Care.—The patient should be catheterized every eight to twelve hours for the first three days, after which the perineum is irrigated during micturition. The wound area is inspected daily, and if any of the sutures have been tied too tightly the tension should be relieved. The bowels are moved on the third day, castor oil being the laxative of choice, assisted by an enema when necessary. If an enema is given it should be under the doctor's supervision, unless the nurse is thoroughly familiar with this class of case. After the third day, when the vaginal gauze is removed, a daily cleansing vaginal douche of normal saline is given. The patient is kept in bed for two weeks. After the fourth or fifth day the apron of tissue over the anus may begin to slough; this will have no bad effect upon the healing of the wound, but the sloughing area should be clipped off with scissors. If the line of demarkation is carefully followed this will cause no pain.

The silkworm gut sutures are removed between the tenth day, and the end of the second week. As a rule, the end of the second week, when the patient is ready to get up out of bed, is the preferable time. Should infection occur in the wound the sutures, several or all, are untied and loosened so as to allow of free drainage and daily irrigation. Later when the infection is over and union begun, the sutures are again drawn tight and tied, as at the time of their introduction. During the third week after operation the patient is allowed up in a chair, the bed pan is discarded and she may move slowly about her room each day.

CASE REPORTS.

No. 1.—Mrs. Van V., aet 23, para 2. Both labors instrumental. Complete laceration occurred with the first delivery. Fecal incontinence ever since.

Operation Ristine. Primary union, complete control of gas and feces from time of operation.

No. 2.—Mrs. McG., aet 48, para 5. Complete incontinence for 18 years, following a very difficult instrumental delivery. She has had three unsuccessful operations for this condition.

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* *Jour. A. M. A., March 22, 1913.*

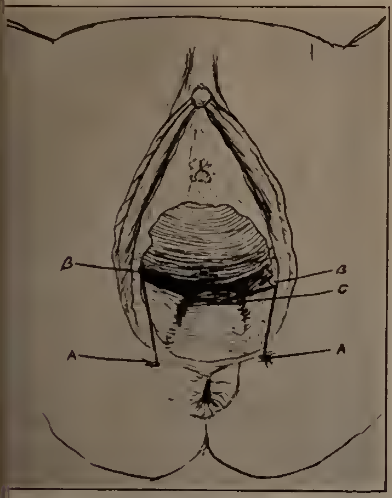

FIG. 1.—Outline of apron from posterior vaginal wall.

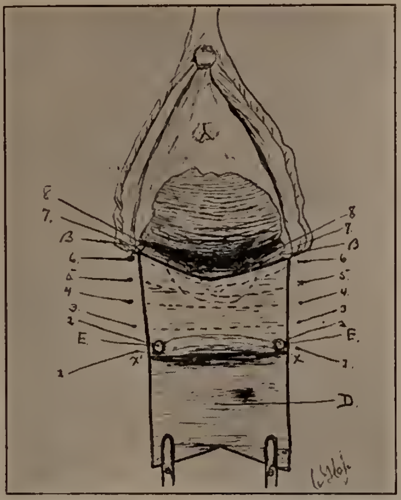

FIG. 2.—Apron freed down to ano-vaginal juncture. Sphincter ends disclosed.

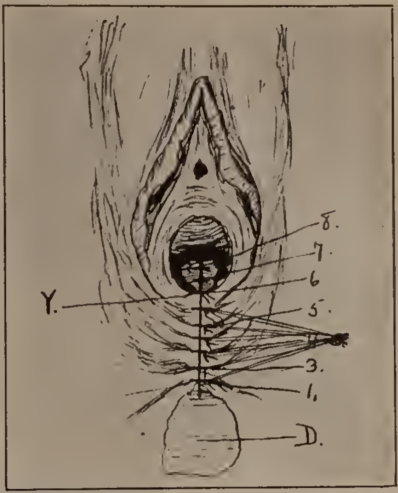

FIG. 3.—Sutures tied in place. D, apron over anus.

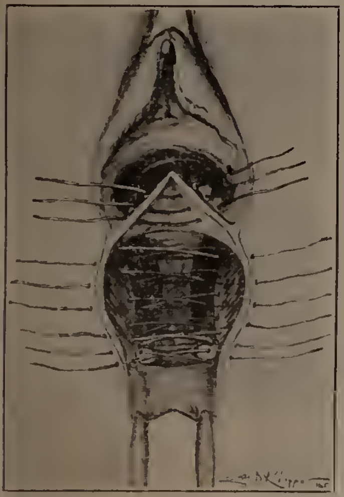

FIG. 4.—Showing method of introduction of figure of eight suture.

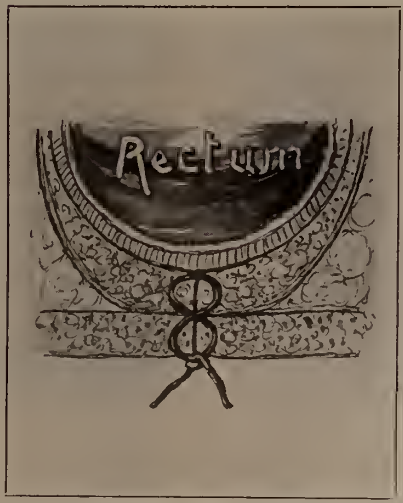

FIG. 5.—Cross section of figure of eight suture tied.

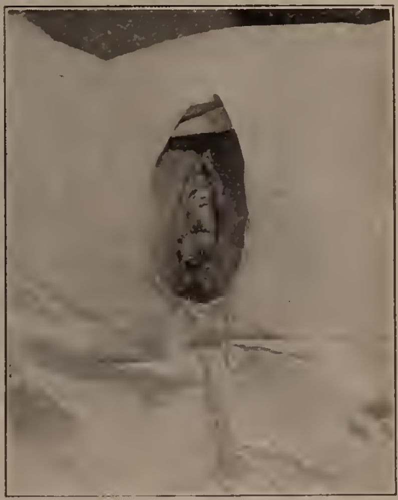

FIG. 6.—Complete tear eight years standing. Partial incontinence.

Operation Ristine. Primary union, and perfect control of gas and feces from the time she came out of the anesthetic.

No. 3.—Mrs. H., aet 32, para 1. A difficult instrumental delivery, at which time the perineum was torn through the sphincter and about 1 inch up the rectum. Since then she has had no control whatever.

Operation Ristine. Complete control of gas and feces from time of operation. In this case the apron sloughed rather early, interfering to some extent with the perineal union, but not affecting in any way the sphincter union. Two months after operation her condition was excellent, with perfect control of gas and feces.

No. 4.—Mrs. N., aet 28, para 2. Complete tear with last child. A primary repair had been done with only partial success. Gas incontinence her chief complaint.

Operation Ristine. Perfect control of gas and feces from time of operation. Five years later no recurrence.

No. 5.—Mrs. S., aet 36, para 8. All instrumental. With the first, ten years previous, she had sustained a complete tear extending about 2 inches up the rectum. No control whatever from that time, not even with constipated stools.

Operation Ristine. Primary union. Complete control of gas and feces from time of operation. Two and a half years later she delivered herself, a precipitate labor, of a 12 pound baby. The perineum was torn down to and partially through the sphincter, so that she now has partial incontinence, occasionally loosing gas, and is unable to control liquid stools.

No. 6.—Mrs. M., 44 years old, para 7. Complete incontinence from first labor, a difficult instrumental delivery.

Operation Ristine. Primary union. Complete control of gas and feces from operation. Discharged two months later in perfect condition. In this case there was a very wide separation of the ends of the sphincter muscle shown in the accompanying photograph.

No. 7.—Mrs. S., aet 23, para 1. Instrumental delivery two years ago. Perineum and sphincter laceration. Complete incontinence ever since.

Operation Ristine. Primary union. Complete control of gas and feces from the time of the operation.

No. 8.—Mrs. S., aet 50, para 10. Complete laceration caused by a rapid, spontaneous delivery 15 years ago. For a number of years she had fairly good control within certain limits, but with the general tissue relaxation of advancing years the sphincter has gradually relaxed until at present there is incontinence of gas and feces at all times.

Operation Ristine. Primary union. Perfect control from time of operation.

No. 9.—Mrs. O'B., aet 32, para 4. The tear occurred with the birth of the first child, a difficult instrumental delivery seven years ago. Since then she has had not the slightest control, and has had to wear pads constantly day and night. There is a complete perineal laceration, with widely separated sphincter ends, and great relaxation of the vaginal outlet, freely admitting a full hand examination.

Operation Ristine. Primary union. Complete control to date.

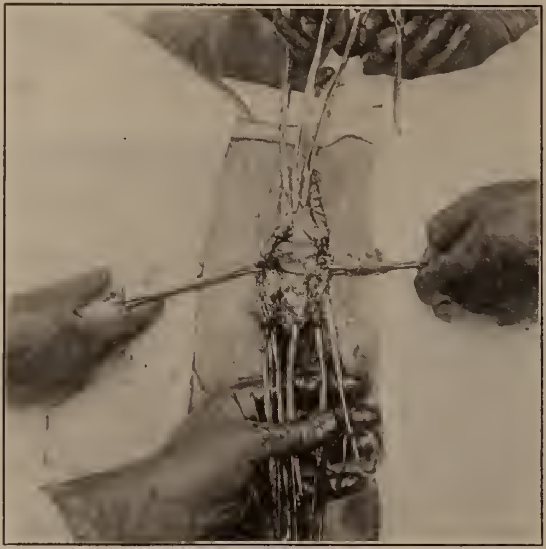

Fig. 7.—Ends of sphincter muscle grasped, and first bite of suture introduced.

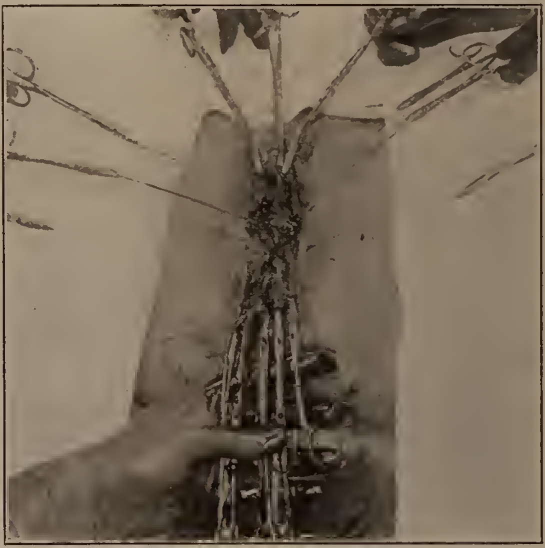

Fig. 8.—Second bite of sphincter suture passed and ready to tie. First bite in levator suture's passed.

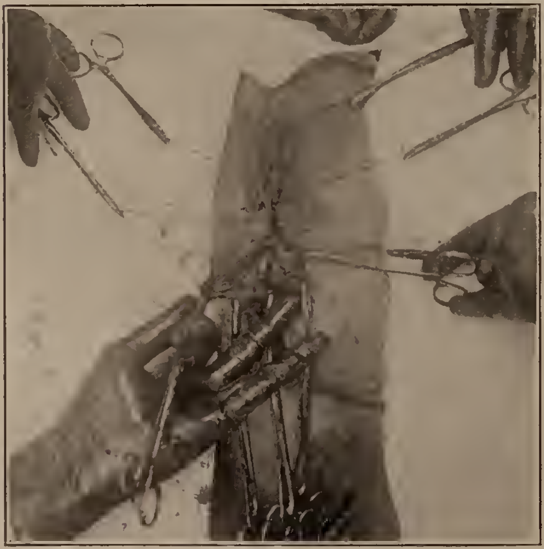

Fig. 9.—Sphincter suture tied, remaining sutures ready to tie.

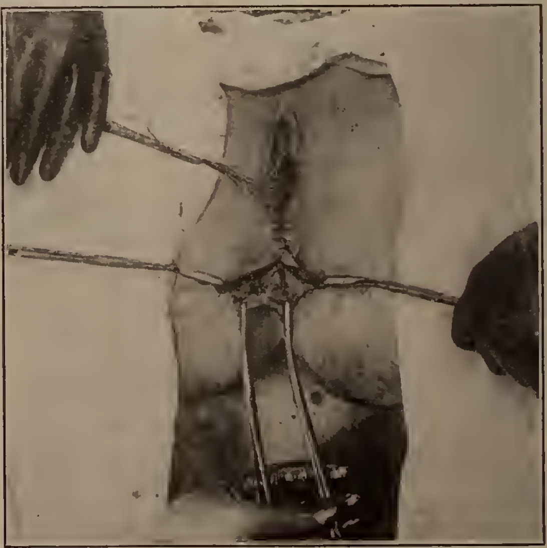

Fig. 10.—Operation completed.

No. 10.—Mrs. E., aet 24, para 1. A difficult breach extraction eight months previous. Occasional incontinence with fluid or semi-fluid stools. No control of gas at any time. Complete tear with small recto-vaginal fistula.

Operation Ristine. Repair of fistula with catgut and linen thread. Primary union. Perfect control of gas and feces.

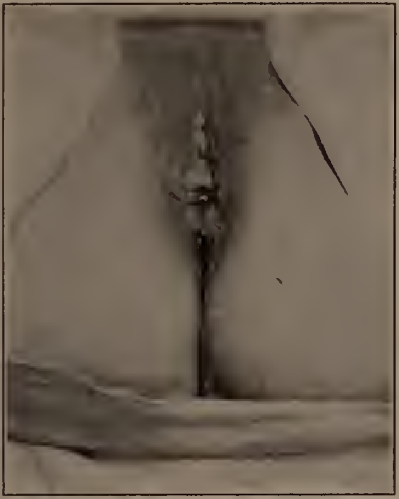

FIG. 11.—Complete tear extending one inch up the rectal wall. Absolute incontinence of eighteen years standing.

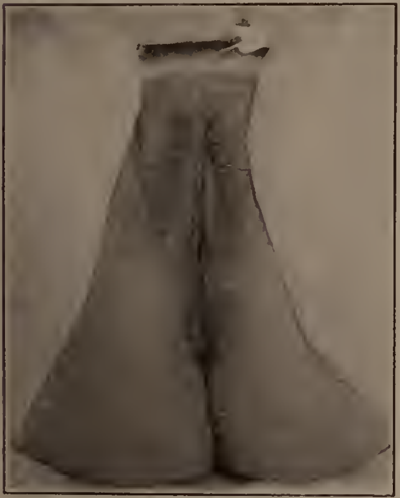

FIG. 12.—Same three months later, perfect control. The remains of the apron was removed under cocaine at the end of the fourth week.

Three months later the patient complains that at times she is unable to perfectly control a very loose stool. Examination shows a well-united sphincter, but she is unable to contract the muscle as strongly as normal.

The oldest patient was 50 years of age, the youngest 23 years. The average age being 34 years. In seven of the cases the condition occurred during instrumental delivery with forceps, in one it was caused by a manual extraction in a difficult breech case. The longest time the incontinence had existed was eighteen years, the shortest eight months.

In presenting this subject it has been my desire to draw your attention to what I consider the one best operation for the secondary repair of complete perineal laceration. So far as I have been able to determine the operations for this condition performed by other methods are far from satisfactory, yielding a very small percentage of successful results. By Ristine's technique, with certain modifications described, I have reported to you the results on ten consecutive cases. In only one instance was union by first intention in the least interfered with, and in 90 per cent the cure was absolute. Once only, in Case No. 10, did we fail to restore perfect control of the sphincter muscle, yet as the patient's condition was very materially improved, even this case cannot be classed as a failure.

RECENT OBSERVATIONS IN THE USE OF SOY BEAN IN INFANT FEEDING.*

By JOHN F. SINCLAIR, M.D.,
PHILADELPHIA, PA.

THE Soy Bean (Glycine hispida) was known to the Chinese and Japanese before the time of Confucius (550 B.C.).

Some time later it was introduced into India. It was cultivated in England and other European countries as a rare botanical curiosity in the latter part of the eighteenth century. The value of the bean from an agricultural standpoint was noted by Thomas Nuttall in 1829 in an article in the *New England Farmer.*

The earliest studies as to its value as a food, appear to have been those of Professor Haberlandt of Austria-Hungary, who in 1878 published the results of his investigations and predicted its future usefulness.

Within recent years, the agricultural experiment stations of various states have made extended investigations into the uses of the bean and the Department of Agriculture of the United States has undertaken to distribute the seeds. The crops as cultivated in this country however have been used largely for fodder or for purposes of fertilization of the soil.

"The plant is an erect annual with branching stems covered with short hairs. The leaves are trifoliate and more or less hairy. The flowers are violet or pale lilac in color and are small. The pods contain two to five seeds and like the stems are covered with stiff, reddish hairs. The bean varies in size, shape, color, and in the length of time they take to mature. Some are whitish, some yellow, some brown and some black. In shape, some are spherical and some more or less compressed. The plants grow to the height of from two to four feet. They bear a remarkable number of beans and the flowers are self-pollinated, making the yield independent of insects."

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* Read at the Annual Meeting of the Medical Society of the State of New York at Buffalo, April 28, 1915.

The plant grows well at the same temperature as corn. In the South, those varieties which take a long time to mature may be best cultivated; while in the North the more rapidly maturing varieties may be used. A quantity of hay may be gathered from these crops while the beans are frequently fed to cattle and hogs.

In China and Japan not only are the beans used in many different ways for food such as soups, boiled, pickled, sauces, cheeses, etc., but the oil is expressed and is used for cooking, illuminating and lubricating purposes.

The Soy Bean is composed as follows:

Water	10.13 per cent
Protein	34.63 per cent
Fat	17.98 per cent
Nitrogen, free extract	30.50 per cent
Fiber	3.69 per cent
Ash	3.07 per cent

Calculated to a water-free basis:

Protein	38.50 per cent
Fat	20.00 per cent

The analysis of the Soy Bean flour as furnished by the producing company shows the following:

Protein (N. X6.25)	44.64 per cent
Fat	19.43 per cent
Mineral matter	4.20 per cent
Moisture	5.26 per cent
Crude fiber	2.35 per cent
Cane sugar	9.34 per cent
Non-nitrogenous extract	14.78 per cent
Starch	None
Reducing sugars	None

Polarization normal weight due to optically active substance other than cane sugar (included in proteids and non-nitrogenous extract) 7.86 per cent.

Dr. John Ruhrah of Baltimore to whom I am indebted for the above details was the first to draw the attention of the medical profession in this country to the use of Soy Bean in infant feeding. In 1909, he presented his preliminary report before the Twenty-first Annual Meeting of the American Pediatric Society. Subsequently in 1910 and 1911, he published the results of further studies.

My own experience with Soy Bean began two years ago. I first employed it because of its high protein and fat content as a weak gruel to replace barley water, tea, and other liquids, in gastrointestinal disturbances in an effort to check the weight losses which occur so frequently. In this, it has proved most efficient. I have the records of 74 cases in which I have used Soy Bean in the wards of The Babies' Hospital of Philadelphia during the past two summers. All of these babies were under three years of age and were ill with summer diarrhea.

Thirty-four were diagnosed gastro-enteritis; 28 enteritis; and 12 ileo-colitis.

In 38 cases, the condition of the patient on admission is noted in the records as varying from "bad" to "dying"; while in 36 cases it is recorded as from "fair" to "good."

In the series of 74 cases, there were nineteen deaths, eleven cases were unimproved, while forty-four babies did well as evidenced by the improvement in their general condition, character of their stools or gain in weight. Some improved in all these particulars, others improved in their general condition and in the character of the stools but did not gain in weight while they were in the hospital.

Twenty-six of the 44 cases gained in weight while in the hospital.

The cases are as follows:

No. 645, N. C.—3 months—weight 6 lbs.—enteritis—condition fair—soy bean as diluent two weeks—stools normal—gain 10 ozs.

No. 648, A. H.—7 months—weight 7½ lbs.—gastro-enteritis—conditions very bad—soy 1 oz. to a quart—10 days—soy as diluent two weeks—normal stools—beginning gain.

No. 654, G. H.—4½ months—gastro-enteritis and bronchitis—condition bad—soy ½ oz. to quart 4 days—soy as diluent 10 days—improving, 12 ozs. gain.

No. 651, T. C.—10 months—10¼ lbs.—gastro-enteritis—condition bad—soy ½ oz. to quart 5 days—soy as diluent one week—much improved—4 ozs. gain.

No. 657, T. V.—2 months—enteritis—malnutrition—condition bad—soy ½ oz. to quart—3 days—soy as diluent one week—stools normal—1 lb. gain.

No. 692, W. M.—6 months—gastro-enteritis—condition fair—soy as diluent after one month in hospital on other food—16 days—stools normal—½ lb. gain.

No. 706, F. McN.—8 months—gastro-enteritis condition fair—soy ½ oz. to quart 3 days—soy as diluent 11 days—stools normal—10 ozs. gain.

No. 712, J. P. D.—10 months—enteritis—condition fair—soy ½ oz. to quart 3 days—soy as diluent 17 days—recovered—10 ozs. gain.

No. 722, D. S.—4 months—gastro-enteritis—condition fair—soy ½ oz. to one quart 24 hours—soy as diluent 20 days—recovered—6 ozs. gain.

No. 756, M. B.—4 months—8¾ lbs.—enteritis—condition fair—soy ½ oz. to quart 2 days—soy 1½ ozs. to 1 quart 1 day—soy as diluent 2 weeks—recovered, 7 ozs. gain.

No. 771, S.—7 months—9½ lbs.—gastro-enteritis—condition fair—soy ½ oz. to 1 quart 5 days—soy as diluent 11 days—recovered—1 lb. gain.

No. 772, L.—9 months—13¾ lbs.—enteritis—condition fair—soy ½ oz. to 1 quart 2 days—soy as diluent 2 weeks—recovered, 5 ozs. gain.

No. 773, H. B.—7 months—8 lbs. 6 ozs.—gastro-enteritis—condition fair—soy ½ oz. to 1 quart 4 days—improvement—10 ozs. gain.

No. 774, A. P.—4 months—6 lbs. 6 ozs.—enteritis-malnutrition—condition bad—soy ½ oz. to 1 quart 5 days—improvement—8 ozs. gain.

No. 804, R. C.—4 months—7½ lbs.—enteritis—condition fair—soy ½ oz. to 1 quart 24 hours—soy as diluent 3 weeks—recovered 4 ozs. gain.

No. 807, A. M.—10 months—10½ lbs.—enteritis—condition fair—soy ½ oz. to 1 quart 24 hours—soy as diluent 5 days—recovered—1½ lbs. gain.

No. 806, M. S.—15 months—15 lbs.—enteritis—condition fair—soy ½ oz. to 1 quart 2 days—soy as diluent 16 days—recovered—1 lb. gain.

No. 800, R. S.—2 months—6¼ lbs.—enteritis—condition fair—soy ½ oz. to a quart 3 days—improved—6 ozs. gain.

No. 798, K. Q.—7 months—9 lbs.—gastro-enteritis—condition bad—soy ½ oz. to 1 quart 3 days—soy as diluent 2 weeks—recovered—5 ozs. gain.

No. 797, J. K.—7 months—9¾ lbs.—gastro-enteritis-pneumonia—condition bad—soy ½ oz. to 1 quart 24 hours—soy as diluent 16 days—stools normal—10 ozs. gain.

No. 374, M. D.—7 months—enteritis—condition bad—soy diluent after two months in hospital on various foods 5 weeks—1 lb. gain.

No. 783, J. W.—6 months—7¼ lbs.—gastro-enteritis—condition fair—soy ½ oz. to quart 2 days—soy as diluent 12 days—recovered—1½ lbs. gain.

No. 780, F. W.—9 months—9½ lbs.—gastro-enteritis—condition fair—soy ½ oz. to quart 3 days—soy as diluent 5 days—recovered—1½ lbs. gain.

No. 776, C. T.—5 months—8½ lbs.—gastro-enteritis—condition bad—soy ½ oz. to 1 quart 3 days—improved—4 ozs. gain.

No. 455, E. S.—16 months—10 lbs.—enteritis—condition bad—soy diluent, after several months in hospital, 1 month—stools normal—12 ozs. gain.

No. 382, G. G.—7½ months—10½ lbs.—gastro-enteritis—condition fair—soy ½ oz. to quart 3 days—soy as diluent 23 days—(after 4½ months in hospital)—recovered—10 ozs. gain.

Of the nineteen cases which died, it is interesting to note that three cases showed a gain in weight.

No. 790, G. B.—6 weeks—5½ lbs.—enteritis—condition bad—soy ½ oz. to 1 quart 24 hours—soy as diluent 9 days—death—1½ lbs. gain—normal stools.

No. 792, J. W.—9 weeks—enteritis—condition bad—soy ½ oz. to 1 quart 24 hours—soy as diluent 2 days—death—3 ozs. gain.

No. 750, P. D.—1½ months—5¾ lbs.—enteritis—condition very bad—soy ½ oz. to 1 quart 24 hours—soy as diluent 10 days—death—gain 1 lb. 10 ozs.

Five of the fatal cases showed stools which are recorded as being "improved" or "normal."

No. 725, M. W.—7 weeks—gastro-enteritis—condition bad—soy as diluent 3 weeks—death—stools normal.

No. 746, W. B.—15 months—16 lbs.—enteritis—condition critical—"very toxic"—soy ½ oz. to a quart 5 days—soy as diluent 1 day—stools much better—child died in convulsions.

No. 790, G. B.—6 weeks—5½ lbs.—enteritis—condition bad—soy ½ oz. to 1 quart 24 hours—soy as diluent 9 days—death—1½ lbs. gain—normal stools.

No. 642, J. B.—11 months—enteritis-pneumonia—condition very bad—soy 1 oz. to 1 quart 5 days—stools normal—death from pneumonia.

No. 680, T.—18 months—ileo-colitis—(much blood) condition critical—soy ½ oz. to 1 quart 3 days—soy 1 oz. to 1 quart 4 days—stools improved—death.

The eleven cases which showed no improvement on soy bean were with two exceptions (cases Nos. 744 and 762) fed for too short a time (1 to 6 days) on the gruel to permit of drawing satisfactory deduction. Seven were given soy bean gruel for less than four days.

In no instance has any bad result been noted from the use of soy bean. Case No. 703 refused all feedings for the first 8 days the infant was in the hospital, but subsequently did well on soy bean gruel used as a diluent. Case No. 641 was "vomiting everything taken" when admitted to the hospital and was able to retain only champagne and beef juice during the three days in which the attempt was made to feed the baby soy bean gruel.

An analysis of the cases shows that the soy bean gruel was administered alone for from one day to ten days, after which it was used as a diluent for from a few days to five weeks.

It was my custom to place the infant on soy bean gruel at once upon admission and to add no milk until the stools appeared markedly improved. Then milk was added cautiously to the gruel as the condition of the stools warranted the increase. It is self evident that with the type of cases with which we had to deal, *i. e.*, very ill infants brought largely from the slum districts of a large city, and exhibiting underlying diatheses such as marasmus, rickets, tuberculosis, and syphilis, the feeding problem was a difficult one, and the return to milk feedings of sufficient caloric value to nourish the infant could only be accomplished slowly as the functions of digestion were improved.

In conclusion, other uses of the soy bean flour might be mentioned. It has proved useful when mixed with cereals, oatmeal or barley jelly. It may be used in broths. Where condensed milk must be employed it is of service because it supplies the protein and fat which is needed and which condensed milk lacks. Since each ounce of soy bean flour yields 13 grams of protein and 120 calories one can readily estimate the added food value of cereals, broths, and condensed milk when a given amount of soy bean flour is added to any one of these articles of diet.

Our experience with soy bean and a careful study of our cases leads us unhesitatingly to urge its usefulness in the treatment of summer diarrhea, in various intestinal disturbances and in marasmus. It is well borne, readily digested, and by reason of its fat and proteid content furnishes the necessary pabulum to nourish the sick infant.

No.	Age	Diagnosis	General Condition	Preparation	How Long Continued	Result
642—Jno. Briggs	11 mos.	Enteritis and Pneumonia	Very bad	Soy ℥i to Oii	= 5 days	Stools normal; death from pneumonia
641—Geo. Chapman	11 mos.	Gast-ent.	Critical. Vomiting everything taken.	Soy ℥ss to Oii Soy ℥i to Oii	= 2 days = 1 day	No improvement; baby able to retain only champagne and beef juice
645—Norwal Campbell	3 mos., 6 lbs.	Enteritis	Fair	Soy as diluent	= 2 weeks	Stools O. K. 10 ozs. gain
648—Anna Hawn	7 mos., 7½ lbs.	Gastro enteritis	Very bad	Soy ℥i to Oii Soy as diluent	= 10 days = 2 weeks	Normal stools; beginning gain
651—Theresa C.	10 mos., 10¼ lbs.	Gastro enteritis	Bad	Soy ℥ss to Oii Soy as diluent	= 5 days = 1 week	Much improved; 4 ozs. gain
649—Anthony B.	6 mos., 7 lbs.	Gastro enteritis	Critical	Soy ℥ss to Oii	= 24 hours	Stools O. K.
654—Grace Harris	4½ mos.	Gastro ent. and Bronchitis	Bad	Soy ℥ss to Oii Soy as diluent	= 4 days = 10 days	Improving; 12 ozs. gain
657—Thos. Van Sciver	2 mos.	Enteritis Malnutrition	Bad	Soy ℥ss to Oii Soy as diluent	= 3 days = 1 week	Stools normal; 1 lb. gain
667—Marg. Rugh	3½ mos.	Ileo-colitis (much blood)	Bad	Soy ℥ss to Oii Soy ℥i to Oii Soy as diluent	= 2 days = 3 days = 5 days	No blood; wt. stationary
668—Dick Brennan	2 yrs.	Gastro-ent.	Good	Soy ℥ss to Oii Soy as diluent	= 2 days = 1 day	Cure
670—Tony Alesio	10 mos.	Ileo colitis (much blood)	Good	Soy ℥i to Oii Soy as diluent	= 24 hours = 2 weeks	Cure
671—Marie Scott	14 mos.	Gastro-ent.	Fair	Soy ℥i to Oii Soy as diluent	= 24 hours = 5 days	Cure
680—Terrence	18 mos.	Ileo colitis (much blood)	Critical	Soy ℥ss to Oii Soy ℥i to Oii	= 3 days = 4 days	Death (stools improved)
684—Bertha S.	6 mos.	Enteritis	Fair	Soy ℥ss to Oii Soy as diluent	= 24 hours = 4 days	Cure
692—Wm. Monahan	6 mos.	Gastro-ent.	Fair	Soy as diluent after 1 mo. in hospital on other food	= 16 days	Stools normal; ½ lb. gain
696—Gus. Goodwin	4 mos.	Gastro-ent. and Malnutrition	Very bad	Soy ℥ss to Oii	= 5 days	No improvement
698—Harry Shingle	4 mos., 9 lbs.	Gastro enteritis	Fair	Soy ℥ss to Oii Soy as diluent	= 24 hours = 10 days	Cured; wt. stationary
700—Marion Z.	4 mos., 9 lbs.	Gastro-ent.	Fair	Soy ℥ss to Oii Soy as diluent	= 24 hours = 10 days	Cure; wt. stationary
701—Jno. Fulton	8 mos.	Ileo colitis	Dying	Soy ℥ss to Oii	= 2 days	Death
703—Wm. McK.	1 yr.	Ileo colitis	Critical	Soy ℥ss to Oii Soy as diluent	= 2 days = 10 days	Refused 1st 8 days; stools normal
706—Fred. McM.	8 mos.	Gastro-ent.	Fair	Soy ℥ss to Oii Soy as diluent	= 3 days = 11 days	Stools normal; 10 ozs. gain
709—P. Weick	17 mos.	Ileo colitis	Very bad	Soy ℥i to Oii	= 2 days	No imp.; death 1 wk. after adm.
710—E. Tidman	10 mos.	Gastro-ent.	Fair	Soy ℥ss to Oii Soy as diluent	= 4 days = 13 days	Cure
712—J. P. Devine	10 mos.	Enteritis	Fair	Soy ℥ss to Oii Soy as diluent	= 3 days = 17 days	Cure; 10 ozs. gain
717—Eleanor Funk	8 mos., 8 lbs.	Gastro-ent.	Bad	Soy ℥i to Oii	= 2 days	No change
722—Dot Savage	4 mos.	Gastro-ent.	Fair	Soy ℥ss to Oii Soy as diluent	= 24 hours = 20 days	Cure; 6 ozs. gain

No.	Age	Diagnosis	General Condition	Preparation	How Long Continued	Result
725—Mary Weber	7 wks.	Gastro-ent.	Bad	Soy as diluent	= 3 weeks	Death (stools normal)
730—Leon Joseph	5 mos.	Gastro-ent.	Fair	Soy ℥ss to Oii	= 24 hours	
				Soy ℥i to Oii	= 5 days	Much improved
740—Thos. Nilan	4 mos.	Gastro-ent.	Fair	Soy ℥ss to Oii	= 24 hours	
				Soy as diluent	= 18 days	Cured, but under weight
741—D. Bowman	5 mos.	Gastro-ent.	Fair	Soy ℥ss to Oii	= 2 days	No change (casein)
744—R. Classon	4 mos., 7½ lbs.	Enteritis, Malnutrition	Bad	Soy ℥ss to Oii	= 3 days	
				Soy as diluent	= 18 days	No improvement
745—Thos. Gill	7 mos., 12 lbs.	Gastro-ent.	Fair	Soy ℥ss to Oii	= 3 days	
				Soy ℥i to Oii	= 2 days	
				Soy ℥iss to Oii	= 2 days	
				Soy as diluent	= 2 days	Much improved; wt. stationary
746—Wm. Bochme	15 mos., 16 lbs.	Enteritis	Critical (Very toxic)	Soy ℥ss to Oii	= 5 days	Stools much better; child died in convulsions
				Soy as diluent	= 1 day	
748—Rose Roth	30 mos.	Enteritis	Good	Soy ℥ss to Oii	= 2 days	
				Soy as diluent	= 3 days	Cure
749—Fr. Danos	4 mos., 6¾ lbs.	Enteritis, Malnutrition	Very bad	Sterile water	= 2 days	
				Soy ℥ss to Oii	= 2 days	Death
750—Peter Donati	1½ mos., 5¾ lbs.	Enteritis	Very bad	Soy ℥ss to Oii	= 24 hours	Death, after gain of 1 lb. 10 ozs.
				Soy as diluent	= 10 days	
755—Geo. May	8 mos., 9¼ lbs.	Enteritis	Fair	Soy ℥ss to Oii	= 24 hours	No change
756—May Brown	4 mos., 8¾ lbs.	Enteritis	Fair	Soy ℥ss to Oii	= 2 days	
				Soy ℥iss to Oii	= 1 day	
				Soy as diluent	= 2 weeks	Cure; 7 ozs. gain
760—Stanley B.	15 mos.	Ileo colitis (blood and pus)	Good	Soy ℥ss to Oii	= 24 hours	
				Soy as diluent	= 18 days	Cure
761—Is. Silverman	3 mos., 7 lbs.	Gastro-ent.	Bad	Soy ℥ss to Oii	= 24 hours	Child removed; no improvement
				Soy as diluent	= 24 hours	
762—Robt. Casey	4 mos., 10 lbs.	Gastro-ent. and Malnutrition	Bad	Soy ℥ss to Oii	= 24 hours	
				Soy as diluent	= 2 weeks	Death
765—Harry Marcus	9½ mos., 14 lbs.	Enteritis	Fair	Soy ℥ss to Oii	= 5 days	
				Soy as diluent	= 12 days	Cure
766—Wm. Kerr	5 wks., 4½ lbs.	Enteritis, Malnutrition	Very bad	Soy ℥ss to Oii	= 24 hours	
				Soy as diluent	= 3 days	Death
767—John Winslow	18 mos., 14 lbs.	Gastro-ent.	Dying	Soy ℥ss to Oii	= 24 hours	Death (4 days)
768—Horace Walker	9 mos.	Enteritis, Pneumonia	Very bad	Soy ℥ss to Oii	= 6 days	Death
769—Aileen Walsh	2 mos., 5½ lbs.	Enteritis, Malnutrition	Bad	Soy ℥ss to Oii	= 24 hours	
				Soy as diluent	= 3 days	No imp. (death in 2 weeks)
771—Santina	7 mos., 9½ lbs.	Gastro-ent.	Fair	Soy ℥ss to Oii	= 5 days	
				Soy as diluent	= 11 days	Cure; 1 lb. gain
772—Lucy	9 mos., 13¾ lbs.	Enteritis	Fair	Soy ℥ss to Oii	= 2 days	
				Soy as diluent	= 2 weeks	Cure; 5 ozs. gain
773—Hazel Brown	7 mos., 8 lbs. 6 ozs.	Gastro-ent.	Fair	Soy ℥ss to Oii	= 4 days	Imp.; 10 ozs. gain
774—Albert Park	4 mos., 6 lbs. 6 ozs.	Enteritis, Malnutrition	Bad	Soy ℥ss to Oii	= 5 days	Imp.; 8 ozs. gain
804—Regina C.	4 mos., 7½ lbs.	Enteritis	Fair	Soy ℥ss to Oii	= 24 hours	
				Soy as diluent	= 3 weeks	Cure; 4 ozs. gain
807—Angelina M.	10 mos., 10½ lbs.	Enteritis	Fair	Soy ℥ss to Oii	= 24 hours	
				Soy as diluent	= 5 days	Cure; 1½ lbs. gain
806—Mary S.	15 mos., 15 lbs.	Enteritis	Fair	Soy ℥ss to Oii	= 2 days	
				Soy as diluent	= 16 days	Cure; 1 lb. gain

No.	Age	Diagnosis	General Condition	Preparation	How Long Continued	Result
800—Robt. Shunbs	2 mos., 6¼ lbs.	Enteritis	Fair	Soy ℥ss to Oii	= 3 days	Imp.; 6 ozs. gain
798—Hugh Quinn	7 mos., 9 lbs.	Gastro-ent.	Bad	Soy ℥ss to Oii	= 3 days	
				Soy as diluent	= 2 weeks	Cure; 5 ozs. gain
797—Jno. Kaiser	7 mos., 9¾ lbs.	Gastro-ent and Pneumonia	Bad	Soy ℥ss to Oii	= 24 hours	
				Soy as diluent	= 16 days	Stools normal; 10 ozs. gain
794—Jno. Galloway	1 yr., 13¾ lbs.	Ileo colitis and Pneumonia	Bad	Soy ℥ss to Oii	= 5 days	
				Soy as diluent	= 3 days	Death
792—Jas. Welch	9 wks.	Enteritis	Bad	Soy ℥ss to Oii	= 24 hours	
				Soy as diluent	= 2 days	Death after 3 ozs. gain
790—Geo. Brooks	6 wks., 5½ lbs.	Enteritis	Bad	Soy ℥ss to Oii	= 24 hours	Death; 1½ lbs. gain and normal stools
				Soy as diluent	= 9 days	
374—Nick Danno	7 mos.	Enteritis	Bad	Soy as diluent, after 2 mos. in hosp. on various foods	= 5 weeks	1 lb. gain
788—Cath. Stewart	6 mos., 8¾ lbs.	Ileo colitis, Gastritis	Bad	Soy ℥ss to Oii	= 3 days	
				Soy as diluent	= 12 days	Death
787—Minnie Hay	4 mos.	Ileo colitis, Gastritis	Dying	Soy ℥ss to Oii	= 2 days	Death
785—Marg. Stopper	9 mos.	Enteritis, L. Pneumonia	Fair	Soy ℥ss to Oii	= 3 days	No change
783—Jas. Wilson	6 mos., 7¼ lbs.	Gastro-ent.	Fair	Soy ℥ss to Oii	= 2 days	
				Soy as diluent	= 12 days	Cure; 1½ lbs. gain
782—Chas. King	5 mos., 10 lbs.	Gastro-ent.	Good	Soy ℥ss to Oii	= 24 hours	Much improved
781—Rose Hagan	6 mos., 9 lbs.	Ileo colitis	Fair	Soy ℥ss to Oii	= 3 days	
				Soy as diluent	= 2 days	Death
780—Florence Wood	9 mos., 9½ lbs.	Gastro-ent.	Fair	Soy ℥ss to Oii	= 3 days	
				Soy as diluent	= 5 days	Cure; 1½ lbs. gain
776—Chas. Turner	5 mos., 8½ lbs.	Gastro-ent.	Bad	Soy ℥ss to Oii	= 3 days	Imp.; 4 ozs. gain
775—Rose Mary	2 mos., 9 lbs.	Enteritis	Good	Soy ℥ss to Oii	= 24 hours	Stools imp.; 12 ozs. loss (given sugar)
				Soy as diluent	= 19 days	
803—Illona Leighton	7 mos., 11 lbs.	Ileo colitis	Fair	Soy ℥ss to Oii	= 2 days	
				Soy as diluent	= 4 days	No change
625—Stanley Clum	6 mos.	Gastro-ent.	Bad	Soy ℥ss to Oii	= 3 days	No change
455—Everett Styles	16 mos., 10 lbs.	Enteritis	Bad	Soy diluent, after several months in hospital	= 1 month	Stools normal; 12 ozs. gain
386—Rose Wolowitz	22 mos., 17 lbs.	Gastro-enteritis	Bad	Soy ℥ss to Oii	= 11 days	
				Soy as diluent	= 18 days	Cured, but under weight
				(After 2 mos. in hosp. and failure to digest various other foods)		
382—Gertrude Green	7½ mos., 10½ lbs.	Gastro-enteritis	Fair	Soy ℥ss to Oii	= 3 days	
				Soy as diluent	= 23 days	Cure; 10 ozs. gain
				(After 4½ mos. in hospital)		

Legislative Notes

STANDING COMMITTEES OF THE SENATE, 1916.

On Judiciary—J. H. Walters, 935 University Bldg., Syracuse; G. E. Spring, Franklinville; A. J. Gilchrist, 249 Crescent Street, Brooklyn; C. T. Horton, 906 D. S. Morgan Bldg., Buffalo; M. S. Halliday, Ithaca; F. W. Cristman, Herkimer; A. W. Burlingame, Jr., 391 Fulton St., Brooklyn; C. W. Walton, Kingston; C. D. Newton, Geneseo; E. R. Brown, Watertown; J. A. Foley, 66 Broadway, New York; W. B. Carswell, 121 St. Marks Ave., Brooklyn; R. F. Wagner, 244 East 86th St., New York.

On Public Education—C. C. Lockwood, 954 Greene Ave., Brooklyn; T. B. Wilson, Hall; M. S. Halliday, Ithaca; C. D. Newton, Geneseo; J. A. Hamilton, 897 Crotona Park, North, New York; I. J. Joseph, 1421 Madison Ave., New York; G. W. Simpson, 468 West 144th St., New York.

On Rules—E. R. Brown, Watertown; J. H. Walters, 935 University Bldg., Syracuse; H. M. Sage, Menands; G. F. Argetsinger, Rochester; R. F. Wagner, 244 East 86th St., New York.

On Public Health—G. H. Whitney, Mechanicsville; W. M. Bennett, 15 William St., New York; C. W. Wicks, Sanquoit; G. B. Wellington, 17 First St., Troy; H. W. Doll, 49 Third Ave., New York; J. J. Dunnigan, 1861 Holland Ave., New York.

STANDING COMMITTEES OF THE ASSEMBLY, 1916.

On Judiciary—J. Knight, Wyoming County; C. O. Pratt, Washington County; E. A. Mackey, Delaware County; R. H. McQuistion, Kings County; J. L. Kincaid, Onondaga County; L. W. H. Gibbs, Erie County; A. V. Parker, Niagara County; W. S. McNab, Schenectady County; R. McC. Marsh, New York County; W. T. Snider, Orange County; H. S. Schimmel, New York County; S. A. Cotillo, New York County; C. D. Donohue, New York County.

On Rules—T. C. Sweet, Oswego County, S. L. Adler, Monroe County; H. E. H. Brereton, Warren County, W. J. Maier, Seneca County; H. E. Machold, Jefferson County; J. M. Callahan, Bronx County; W. J. Gillen, Kings County.

On Public Education—M. E. Tallett, Madison County; H. A. Murphy, Suffolk County; R. T. Kenyon, Essex County; J. A. Harris, Monroe County; W. S. Augsbury, Jefferson County; R. B. Oldfield, Steuben County; R. Graves, Erie County; E. C. Davis, Montgomery County; C. F. Welsh, Albany County; W. Duke, Jr., Alleghany County; D. C. Oliver, New York County; T. T. Reilley, New York County; A. Goodman, New York County

On Public Health—G. T. Seelye, Saratoga County; H. L. Grant, Lewis County; J. L. Kincaid, Onondaga County; R. B. Oldfield, Steuben County; J. A. Harris, Monroe County; P. C. Jezewski, Erie County; N. D. Shapiro, Kings County; J. C. Allen, Dutchess County; C. Fenner, Tompkins County; J. A. McGinnies, Chautauqua County; J. C. Campbell, New York County; J. Goldstein, New York County; R. P. Bush, Chemung County.

HEALTH INSURANCE.

Any health insurance laws in this State affect the medical profession so intimately that it has seemed wise, with the publication of the accompanying bill already presented to the Legislature, to publish some discussion of the possible effect on the profession. Similar laws in Germany have borne severely on the medical profession and injured their income. In England, similar laws have increased the income of the medical profession but given inferior medical care to the poor. In this present bill, in this State, the medical regulations and the detail of the working of the law, as far as the medical profession is concerned, are to be left to regulations by the Commission, which will be flexible and capable of change as circumstances may demand. They are not put into the law as a hard and fast inherent part of the State laws. It is well, however, that the medical profession should consider these regulations well in advance, and be prepared to co-operate with definite ideas rather than to do as the profession of England did,—remain indifferent to the whole thing until the law had been passed and then fail to obtain regulations that might easily have been secured had the matters been properly adjusted beforehand.

In considering any scheme of medical relief under the Sickness Insurance Act one must consider it from three points of view: the medical point of view, the patient's point of view, and the view of the insurance carriers.

In beginning the consideration of the medical point of view, it is necessary to consider certain medical customs and habits of thought. The medical service is always an individual one, and the State requires it to be individual. Medical public opinion demands that the physician shall give an adequate and just service to his patient, and that the physician shall not permit himself to be placed in positions where he gives careless, incompetent service, to the injury of those under his care. Any physician neglecting this standard loses caste. He is condemned by his colleagues, and the position or system in which such service is likely to occur is held in contempt by the profession, and has been classified under the opprobrious name of "contract practice." All medical service is really a contract, and many physicians under salaries, such as with insurance companies or railroads, are not condemned, nor do they lose caste by accepting such contracts. But any contract which carries with it an unreasonable amount of work by the doctor, which in turn forces neglectful, hurried service to the patients, is always condemned. These situations are usually found in certain lumbering and mining camps and under other corporations, and in the familiar lodge practice in large cities.

Lodge practice and other condemned forms of contract practice are all under the capitation plan of remuneration, and the capitation idea of service under sickness insurance has necessarily these inherent faults which cannot be eradicated and can only be controlled to a limited extent if they can be controlled at all. By this form of capitation is meant the per patient per year form of payment to the doctor. Another form of capitation which is used abroad is frequently used in a compromise with the free choice system of the doctor by the patient; that is, a sickness society has a certain amount of funds that it can pay for medical services to the doctors. This lump sum it gives to some association of doctors, and the physicians charge up each visit and each act of service rendered to each patient as so many points of work done against the medical society. Usually every three months each physician hands in his account to the medical society, and the total number of points are divided into the total amount of funds, and the remuneration paid to the physicians pro rata. The two faults in this country for this method are, that there is no society or association of physicians which is sufficiently universal in its membership to justify such a procedure, for many men who would work among the working classes do not belong to the medical societies, and if any control was attempted through the present societies, there would be many doctors working among the insured who would be beyond such control; and, furthermore, in times of great amount of sickness, the more work that is done the less is each point of service worth, and after a certain amount of services have been given by the physicians, the more work they do, the less money do they receive in ratio to work done. If the total amount paid by the societies remained the same, and if twice as much work were done by the doctors in an epidemic as in an average year, each point would be worth half as much and the remuneration would be the same under great stress of work as under an average year. This is not just remuneration, and would soon bring a resentment on the part of physicians because of undervaluation of their work and the injustice in it, and there soon would develop a situation similar to the other form of capitation of overcrowded work and the underpaid men.

There is, in some parts of Germany, the regularly paid physician under definite salary from the society. This might or might not work out well, because it would be a similar form of contract to that of the railroad surgeons, but it would be very liable in sickness insurance to be abused, and soon the inherent faults, as in capitation, would develop. Moreover, any sickness insurance society could only hire a certain number of physicians, and unless they arbitrarily refused free choice of physicians to their members and divided them in equal numbers among their salaried physicians, the natural difference in personality of the physicians would immediately cause some of their practices to be overcrowded while others were neglected, and again the inherent faults under capitation develop.

One comes to the other form of medical service—that of visitation, i. e., a stated fee per visit per patient, or with a fee graded according to character of services with free choice of the physician by the insured, either with an unlimited number of patients or with a limited number of patients under a panel system, by which a definite number of patients can be apportioned to any one doctor and under which all patients must be apportioned to some doctor,—this with the consent of the physicians and patients; or, absolute free choice of the physician by the patient, with no panel and no control by the Commission of the physician through his position on the panel; or free choice of the physician by the patient, with control of the physicians through a series of committees.

It has been generally claimed that free choice of physicians and this visitation method of so much per patient per visit always increases the number of visits and the expense of medical care to the insuring societies. These claims, however, were not substantiated in an investigation of the subject in Manchester, England. There is no question that from the medical point of view the visitation system is the most just. There is no question from the patient's point of view that they obtain by this means the best service. There is less danger of neglectful and overcrowded services being rendered to them; it eliminates the inherent faults of the capitation system, but increases the expense over capitation because it gives a fair return which capitation does not do. It seems to increase the opportunity for malingering and simulation, which, unless controlled, become the bane and ruin of any social insurance system.

The ethics of any profession are but the moral customs of the general community modified to suit peculiar services which that given profession performs, and the ethics of the average member of any profession will not rise any higher than the average of the community in which he lives. In any community, therefore, there will be dishonest physicians whose acts must be controlled that they may render an honest return to the patients and to the insurance carriers. Therefore, this human factor necessitates a scheme by which this control can be most economically and efficiently exerted. The German system of committees composed of workingmen and physicians seems to meet this situation the best. For example, the Leipsic sickness fund has a representative Medical Committee of the Society doctors, a Conciliation Committee and an Arbitration Committee. This Medical Committee is composed of twelve members chosen every two years by the doctors in the service of the Society. The duties of the Committee relate primarily to the constant supervision and the control of the work of the Society doctors, also to calculating and dividing the remuneration of the doctors, and to the maintenance of their rights and interests. They scrutinize the charges that the doctors make; they scrutinize the prescriptions of the doctors for other medical or surgical requirements; they scrutinize the number of persons certified by each doctor who are unable to work, and the length of time of the inability according to statistics prepared by the Society; they determine where there has been improper excess of the normal average. In case of serious default, as regards certifying patients as unable to work, the Committee deducts from the remuneration of the doctor, for the benefit of the Society, the excess charges incurred in consequence of the default in payment of benefit. The Committee communicates semi-annually to all the Society doctors the result of the statistical preparations on which they have based their work.

This physicians' committee can discipline the doctors when it is found they have been seriously at fault by taking one of the following actions, in addition to making deductions from the doctor's remuneration. They can give him advice or written warning, or, after two unheeded warnings, temporary suspension of from one to twelve months from attendance on society patients. The doctor in default, however, must be heard before a written warning or suspension is invoked. If the doctor has been twice temporarily excluded from the Society practice, without result, if the Society does not use its right to give the doctor a notice to terminate his contract, the committee may make request to the Arbitration Committee that the doctor be permanently excluded from society practice. Complaints made by the patient or by the Society in regard to the practice of a doctor are brought before this Medical Committee for its opinion, and the opinion given on the case is communicated to the doctor by the Committee. Circulars and directions which the Society proposes to issue to the doctors are first submitted to the Committee for its opinion; complaints by a doctor against the Society have first to be communicated to the Committee, which has to give an opinion to the doctor on the complaint. This opinion shall be communicated to the Society. Complaints by doctors in regard to members of the Society are to be communicated by the Committee only if the managing committee of the Society does not give satisfaction to the doctor in regard to the complaints.

It is thus seen that this Committee stands between the general mass of doctors doing work among the insured and the insuring societies. Although the Leipsic Medical Committee of twelve seems to be too large for the best results, any medical committee is able from its expert point of view to understand the viewpoint of the medical profession, which is peculiar to it in matters of ethics and standards, and it can more readily deal out justice because of this expert knowledge. In this country, however, it has heretofore been difficult to obtain discipline of the members of the profession by committees of the profession. Any development toward this end, in New York State in particular, has been further discouraged by several cases in the courts in which medical societies have endeavored to discipline, by expulsion, members guilty of what was believed to be wrongdoing. The courts have almost invariably forced the societies to reinstate the objectionable members, and have further delivered to the societies a severe scolding because some minute legal technicalities had not been complied with. The profession has felt that the intricacies of the law have blocked the development of medical control by the profession itself, and the regulation of the profession by the profession in New York State has not developed to the extent that it should have done. Whether or not, under a sickness insurance law, adequate control of the medical profession by a medical committee would be possible, cannot be foretold. With this responsibility, however, thrown upon their shoulders, and with adequate rules for protection, through such committees, the medical profession should be able to bring about the desired results. If, however, this is not possible, then the medical profession must face the issue of whether or not it will be forced to accept a lay control or a combination of control by laymen and physicians.

A special Conciliation Committee should be appointed for deliberation on questions which appear to require consultation between any society and its doctors, and for the friendly consideration of all kinds of differences. In the Leipsic Society, such a committee is further described as consisting of the chairmen of the managing committee of the Sickness Society and of the representative Medical Committees. Such a committee, however, should be a small committee of but, probably, three members, that its efficiency and activity should be at a maximum, and it should be composed of a workman and an employer and a physician, and should be subject to the call of any one of its members.

The Arbitration Committee should be composed of workmen, employers and physicians, presided over by a member of the Commission, and one member of the committee should be a lawyer. It should be the final committee of appeal from the Medical Committee and the Conciliation Committee, and should be the final committee for discipline of physicians regarding their expulsion, and should hear all appeals made from the decision of the Medical or Conciliation Committees. All appeals and disputes between physicians and the insuring societies or between physicians and any of the insured should also go through it to the Commission.

These committees should not serve without pay. The custom of most corporations in this country of paying a gold piece to their directors at each meeting should be followed in these committee meetings to the extent of giving some definite stipend for attendance at the meeting. Work of this character is arduous, and positions on the committees should be honorable positions and recompense should be given for the work done.

In all sickness insurance, there is one mooted question that constantly arises, and that is,—who shall decide any dispute between a physician and an insured member as to whether or not this patient should go back to work and his benefits cease? There is always trouble if this work is left to the physician alone. Patients will demand leniency, will go to the doctors who are lenient, and physicians, unless of rugged character, will be afraid of losing their patients and injuring their income unless they are lenient, and thus the expense of the insurance carriers will be enormously increased by a continuance on the sick list of patients who should be at work. If, whenever this mooted point arises, the decision could be referred to some impersonal committee or to some regularly constituted, salaried medical referee, it would enormously improve the working of the insurance act. There will probably be required a medical inspection department under a medical referee or referees to control malingering and valetudinarianism.

There is no intention at this time of going into the details of the regulations necessary for the smooth running of a sickness insurance scheme. That must be left as a matter between the various societies and the physicians on the panel; it must be worked out under the Commission, and will undoubtedly vary in different sections of the State. It is doubtful if the remuneration to the physicians per patient per visit will vary much in different parts of the State because the sickness insurance is limited to persons of definitely limited wages. The compensation law now demands that medical service shall be paid subject to regulation by the Commission, and shall be limited to such charges as prevail in the community for similar treatment of injured persons of a like standard of living, but does not limit the wages of those employed who are subject to the Act.

From the patients' point of view, efficient medical service is necessary. Any general sickness insurance law among the poor will develop an increase of medical service and demands. Some form of sickness or injury has been the calamity through which the poverty of the poor has been changed to destitution in the majority of those applying to charity for aid, so that often all that has separated poverty from destitution has been the ability of the wage earner to go to work each day. Just so soon as the wage earners realize that they can have medical care as their due, without further expense than already borne by them, it is bound to increase enormously the demands on the medical profession. Of course, after a few years, when they become used to the idea, the mass of trivial and unnecessary calls will diminish, but a certain amount of unsuspected sickness among the poor will come to light and will probably increase the necessities of medical care beyond any calculated expectations. Adequate medical services to the patient must contain, at times, the possibilities of more than the average practitioner can necessarily furnish. The standard demanded from the individual practitioner will probably not exceed that demanded under the English Act, which considers that adequate medical attention and treatment is that treatment of a kind which can consistently, with the best interests of the patient, be properly undertaken by a general practitioner of ordinary professional competence and skill. The physicians of the Book Printers' Sickness Fund, of Berlin, agree to care for all members not requiring hospital treatment, and to expedite recovery to the best of their power. In the Leipsic Sickness Fund, physicians agree to give requisite treatment in accordance with the recognized custom of the medical profession. The English Act does no more than provide the advice of the panel doctor as to how further treatment may be obtained. It fails noticeably to furnish expert care or advice or adequate hospital accommodations; it only attempts to provide this in tuberculosis.

In the Sickness Societies of Germany there are many specialists to whom the patients may go. The Leipsic Society employed 130 specialists and 24 dental surgeons out of its total of 400 doctors; the Dresden Society 64 out of its total of 226. These necessary details of organization must be left to the arrangement of the local societies. There is no doubt, however, but that the details of what is ordinary and what is extra work, such as the difference between day calls and night calls, the difference between office visits and home visits, the detail of the ability of the general practitioner to call in a consultant if he or the patient shall demand it, what shall be the fees under these circumstances, or whether all consultation work shall be done by the medical referees, are all questions coming up for decision.

There is no question that modern medical treatment demands more team work among physicians than was formerly done. The bacteriologic examinations of sputum, of throat cultures, etc., are done in this country free of charge by the city and state departments of health. But X-ray diagnoses and any other special diagnostic procedures must still come under the specialist category.

This brings us to the question of the dispensaries, and back of the dispensaries, the hospitals. Up to this time the dispensaries and the hospitals have been the expression of the amount of free medical care that the city or state governments, or private corporations, were willing to give to the poor. A well conducted and well organized dispensary offers the most economical and efficient method of giving to the patient the many specialized medical services that the varying nature of their illnesses may require. More diversified medical and surgical work is performed in the dispensaries than is performed in the hospitals. There is less specialized service in the majority of the hospitals than in any dispensary of even moderate size. But there are more hospitals given over to special work than there are dispensaries so constituted, although most special hospitals have also a dispensary attached to them for the sake of obtaining patients to fill the hospitals. Most of the medical positions in dispensary or hospital are occupied without remuneration, the medical experience being sufficient compensation in this country for whatever time or knowledge the doctor may bestow. Abroad, in certain countries, similar positions have a salary attached to them, and medical men are not expected to give their medical or surgical knowledge and services uncompensated.

Under the Sickness Insurance Law, the general dispensaries present opportunities for an adequate and well developed method of furnishing abundant services in special branches of medical or surgical care to all patients who are not too sick for hospital care and who may require some special service which the average general practitioner cannot give them. The situation, however, will arise whether or not the dispensaries should be confined to the use of the development of the specialties and all the general medical care given in the homes of the patients, or whether patients shall be allowed to choose between their own doctor and some general practitioner in the dispensary as far as the general medical care is concerned. This is a question which contains serious possibility of dispute. It may be that the general medical classes of a dispensary may, in the end, be developed into a place where patients may go for expert diagnosis on the plane of the consultant, being referred back to their physician for care or being referred to specialists if such be necessary; the dispensary becoming then an institution for special care or expert diagnosis and not containing, as now, classes in ordinary internal medicine. However this may be decided, medical services rendered in the dispensary must, in future, receive remuneration, and free dispensaries soon be a thing of the past. Physicians in the dispensaries, moreover, must be under control of the committees controlling the doctors in general insurance practice, and if the despensaries are run by private corporations, it must be within the power of the Commission to forbid persons under the Insurance Act to go to dispensaries which do not give adequate medical service. In all probability, if the Commission should publish to the insured that a certain dispensary was failing to give adequate medical care, the stigma of such publication would soon force any private corporation to give adequate medical services. The rules and regulations by which patients are permitted to accept the hospital provision of the Sickness Insurance Act will have to be under definite agreement and the care received in the hospitals under definite supervision.

Under the Workmen's Compensation Law, disputes arise because in the same ward one patient will be under the Compensation Law and another not, and any surgeon is liable to be accused by the patient not under the Compensation Law of neglecting him and favoring the man under the Compensation, because of the extra fee given to the surgeon. The Workmen's Compensation Law makes certain poor patients pay-patients and necessarily leaves others out of this category. Sickness Insurance Laws will probably act in the same way in the medical wards in the same hospitals, and the human element of envy and resentment on the part of the patients will bring many disputes and complaints of the service rendered to them. It is doubtful if the attending physicians and surgeons in the large public hospitals should take positions on insurance panels. It would seem wiser if they did not. They usually have reached a position in their profession where their private practice is not among those persons who will be insured by the Sickness Insurance Act. It would seem wiser, therefore, that it should become a custom that the attending physicians, at least, should care for all alike without remuneration, and that the special work required by the Sickness Insurance should be done by some assistant and not by the attending physician. The attending physician, therefore, in charge, would give his services to all alike, and there could be no criticism or envy on the part of the patient for care received. The decision required by the Sickness Insurance Act as to when the patient was ready to leave the hospital and go to work, of filling out the certificate necessary under the working of the Act, the special daily hospital care and attention required, should be done by some assistant against whom the question of unequal attention between patients could not arise. Adequate supervision of smaller hospitals in which there is no house staff must be formulated by the Commission, for there is no question, as stated above, that adequate medical and surgical service must be given and must be controlled, whether this service be in the homes of the patients or in the hospitals and dispensaries to which they may go.

From the point of view of the insuring societies, they must realize that they must give to the medical profession an adequate remuneration for work done, and in return for a just fee they have a right to demand that the service given shall be of full, time and medically adequate. The German method of giving generously a little more that the strict letter of the law demands in drugs, spectacles, trusses and all medical and surgical apparatus to the insured, should be followed rather than the inadequate English method of giving only the cheapest medical and surgical appliances and refusing to give adequate spectacles or other surgical appliances because they are of more than average expense. The result in Germany has been a diminution of the length of time that medical benefits have been paid, and the result in England has been a long continuance of patients on the sick lists drawing money benefits. Judging from the Fabian report, the English method has been truly one of "penny wise, pound foolish."

We have considered here the working and necessities of medical care and control under a compulsory sickness insurance as exemplified chiefly in England and Germany, as these two types of compulsory insurance give the best examples of the results of the various methods employed for the carrying out of compulsory sickness insurance. Many difficulties of administration and many failures in administration have developed in both countries through the employment of the capitation plan of remuneration to the physicians. In Germany this has resulted in bitter animosity between the medical profession and the insuring societies, and bitter contests for increased remuneration in which, in the enormous majority of contests, the physicians have won. In England it has resulted in inadequate care being given to the majority of the insured under the Act. In this country it would seem to be useless to attempt to repeat the inherent faults of capitation payment, and medical opinion and customs in this country are already in vigorous antagonism to this form of contract practice. It would seem unwise, therefore, to start with the bitter antagonism of the medical profession against capitation. This would seem to force the necessity in this country of a remuneration based on the visitation system. With this point of view clearly recognized, many difficulties experienced abroad will not occur, and, in fact, the chief stumbling block to the successful carrying out of the law is removed.

Committee on Publication.

January 31, 1916.

STATE OF NEW YORK.

No. 236 Int. 236

IN SENATE,

January 24, 1916.

Introduced by Mr. MILLS—read twice and ordered printed, and when printed to be committed to the Committee on the Judiciary.

AN ACT

To establish a system of insurance to provide benefits for employees in case of death, sickness and accident, not covered by workmen's compensation.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

HEALTH INSURANCE LAW.

Article 1. Short title, definitions and persons insured (Secs. 1-5).
2. Benefits (Secs. 6-22).
3. Contributions (Secs. 23-29).
4. Carriers (Secs. 30-52).
5. Commission (Secs. 53-69).
6. Miscellaneous provisions (Secs. 70-73).

ARTICLE 1.

SHORT TITLE, DEFINITIONS AND PERSONS INSURED.

Section 1. Short title.
2. Definitions.
3. Compulsory insurance.
4. Persons exempted.
5. Voluntary insurance.

Sec. 1. Short title. This chapter shall be known as the "health insurance law."

Sec. 2. Definitions, when used in this act. "Commission" means the social insurance commission;

"Association" means a local health or local trade health association, as the case may be;

"Society" means an approved society;

"Carrier" means the society or association which carries the insurance;

"Insurance" means health insurance under this chapter;

"Disability" means inability to pursue the usual gainful occupation;

"Employer" means a person, partnership, association, corporation, the legal representatives of a deceased employer, or the receiver or trustee of a person, partnership, association or corporation, and the state or a municipal corporation or other political division thereof;

"Homeworkers" are persons to whom articles or materials are given out to be made up, cleaned, altered, ornamented, finished, or repaired, or adapted for sale, in the worker's own home, or on premises not under the control or management of the employer;

"Wages" and "earnings" shall include actual expenditures for or reasonable value of board, rent, lodging and similar advantages given employees by the employer and gratuities received in the course of the employment from others than the employer, and both these advantages and gratuities shall be added to the actual expenditures of the employer for wages for the purpose of computing his payments under section twenty-seven.

Sec. 3. Compulsory insurance. Every person employed in the state at manual labor and all other employed persons earning less than one hundred dollars a month, unless exempted under section four of this chapter, shall be insured in an association or society as provided in this chapter.

Sec. 4. Persons exempted. The following persons shall be exempt from the provisions of this chapter:

Employees of the United States;

Employees of the state or of municipalities for whom provision in time of sickness is already made through legally authorized means which in the opinion of the commission is satisfactory;

Inmates of charitable or reformatory institutions when employed for the purposes of the institution with or without maintenance, if provision for maintenance and medical attendance during sickness is made;

Casual employees not employed for the purpose of the employer's trade or business;

Members of the family of the employer who are not paid money wages.

The commission may exempt homeworkers, who, owing to the irregularity of their work or other circumstances connected with their work, cannot for administrative reasons be included in the system.

Sec. 5. Voluntary insurance. Self-employed persons whose earnings do not exceed one hundred dollars a month on an average;

Persons formerly compulsorily insured who, within one year from the date on which they cease to be insured, apply for voluntary insurance;

Members of the family of the employer who work in his establishment without wages may insure themselves voluntarily in the local health or local trade health associations of the locality in which they live and of the trade at which they are employed, subject to the conditions of this chapter.

ARTICLE 2.

BENEFITS.

Section 6. Cases in which benefits paid.
7. Minimum benefits.
8. Medical, surgical and nursing attendance.
9. Medical service.
10. Medical and surgical supplies.
11. Hospital treatment.
12. Cash benefit.
13. Cash benefit to dependents.
14. Computation of benefits.
15. Periods of payment.
16. Funeral benefit.
17. Benefits from other sources.
18. Payment of damages from other sources.
19. Suspension of benefits.
20. Assignments and exemptions.
21. Additional benefits.
22. Extension of insurance.

Sec. 6. Cases in which benefits paid. Benefits shall be paid for any sickness or accident or death not covered by workmen's compensation.

Sec. 7. Minimum benefits. Every carrier must provide for its insured members as minimum benefits.

Medical, surgical and nursing attendance;

Medical and surgical supplies;

Cash benefits;

Funeral benefit.

Sec. 8. Medical, surgical and nursing attendance. All necessary medical, surgical and nursing attendance and treatment shall be furnished by the carrier from the first day of sickness during the continuance of sickness but not to exceed twenty-six weeks of disability in any consecutive twelve months. This shall include medical, surgical and obstetrical aid to insured women during confinement. In case the carrier is unable to furnish the benefit provided for in this section, it must pay the cost of such service actually rendered by competent persons at a rate approved by the commission.

Sec. 9. Medical service. The carrier, subject to the approval of the commission, shall make provision for medical, surgical and nursing aid by duly qualified physicians, surgeons and nurses or through institutions or associations of physicians, surgeons and nurses, as required by this chapter.

Sec. 10. Medical and surgical supplies. Insured persons shall be supplied with all necessary medicines, surgical supplies, dressings, eyeglasses, trusses, crutches and similar appliances prescribed by the physician or surgeon, not to exceed fifty dollars in cost in any one year.

Sec. 11. Hospital treatment. Hospital or sanatorium treatment and maintenance may be furnished instead of all other benefits, except as provided in section thirteen, with the consent of the insured member, or that of his family when it is not practicable to obtain his consent. The carrier may demand that such treatment and maintenance be accepted when required by the contagious nature of the disease, or when in the opinion of its medical officer such hospital treatment is imperative for the proper treatment of the disease or for the proper control of the patient. Cash benefit other than to dependents may be discontinued during refusal to submit to hospital treatment. Hospital treatment shall be furnished for the same period as cash benefit. This benefit may be provided in those hospitals with which carriers have made satisfactory financial arrangements which have met the approval of the commission, or in hospitals erected and maintained by carriers with the approval of the commission.

Sec. 12. Cash benefit. A cash benefit shall be paid beginning with the fourth day of disability on account of any illness except for disability due to childbearing; it shall equal two-thirds (sixty-six and two-thirds per centum) of the weekly wages of the insured member. It shall be paid only during continuance of disability, and shall not be paid to the same person for a period of over twenty-six weeks in any consecutive twelve months.

Sec. 13. Cash benefit to dependents. A cash benefit equal to one-third of the wages of an insured member receiving hospital treatment and entitled to cash benefit shall be paid to his wife, dependent husband or children while he is in the hospital.

Sec. 14. Computation of benefits. For the purpose of computing the cash benefit, weekly wages shall be taken as the earnings during the last six days on which the employee worked full time preceding disability not including earnings for overtime, unless such overtime is a regular occurrence in the employment; but if this computation would be unfair to the employee, his weekly wages shall be taken as six times his average daily earnings for the days actually employed at full time during the three months preceding disability.

Sec. 15. Periods of payment. Cash benefit shall be paid weekly where possible, and in no case less frequently than semi-monthly.

Sec. 16. Funeral benefit. The carrier shall pay for the actual expenses of the funeral of a deceased insured member, as arranged for by the family or next of kin, or in absence of such by the officers of the fund, up to the amount of fifty dollars. The funeral benefit shall be paid in case of death of a former member while in receipt of sick benefits, or death within six months after discontinuance of cash benefit because of the exhaustion of the time limit, provided he has not, within those six months, returned to work.

Sec. 17. Benefits from other sources. If the insured member be entitled to insurance benefits during sickness from other sources, his cash benefit under this chapter shall be so reduced that his cash benefits from all sources shall not exceed his earnings and the carrier may refuse to pay cash benefit until the insured member has disclosed the amount of cash benefit to which he is entitled from other sources.

Sec. 18. Payment of damages from other sources. In case the insured member, his heirs or assigns are paid damages or compensation from another source on account of sickness, accident or death, the carrier shall be entitled to be reimbursed out of such damages or compensation when collected, for the reasonable cost of all benefits given the insured on account of such sickness, accident or death.

Sec. 19. Suspension of benefits. While the insured person is (1) serving a term in prison or in jail pending trial, or (2) in an insane asylum, home for the feeble-minded, or a public institution for other defective persons, he shall not be entitled to benefits.

Sec. 20. Assignments and exemptions. Claims for benefits under this chapter shall not be assigned, released or commuted and shall be exempt from all claims of creditors and from levy, execution and attachment or other remedy for recovery or collection of a debt, which exemption may not be waived. Benefits shall be paid only to the person or persons entitled to receive the same, or to some person who is liable by law or in fact for the support of such person or persons.

Sec. 21. Additional benefits. The carriers may grant the following additional or increased benefits if the commission be satisfied that the income of the carrier is sufficient for the purpose:

Medical, surgical and nursing care and medical and surgical supplies to members of the family of the insured;

A cash maternity benefit to insured women;

Extension of cash benefit to exceed twenty-six weeks but not to exceed fifty-two weeks;

Funeral benefits for members of the family;

Increased amount allowed for medical and surgical supplies and appliances;

Increase in the period of extended insurance;

Dental work in addition to extraction, treatment and ordinary fillings, either up to a certain amount per year or by contribution of part of the cost.

Sec. 22. Extension of insurance. When contributions cease on account of unemployment not due to sickness, the insurance shall continue in force for one week, if the insured person has paid contributions during six weeks immediately preceding unemployment; and an additional week for each additional six weeks of paid-up membership during the preceding twenty-six weeks.

ARTICLE 3.

CONTRIBUTIONS.

Section 23. Apportionment of contributions.
24. Contributions of low paid workers.
25. Amount of contributions.
26. Payment of contributions.
27. Calculation of payments.
28. Rates of contributions.
29. Establishments with excessive rate of sickness.

Sec. 23. Apportionment of contributions. The full cost of insurance provided by this chapter, including contributions to reserve and guarantee funds, shall be borne by employers, employees and the state in the following proportions: Employers, two-fifths; employees, two-fifths, and the state one-fifth, except as provided in section twenty-four.

Sec. 24. Contribution of low paid workers. If the earnings of the insured are less than nine dollars a week the shares of the employer and employee of the amount paid by them jointly shall be in the proportion indicated in the following table:

If earnings are under	But not under	Employer, Per cent.	Employee, Per cent
$9	$8	60	40
8	7	70	30
7	6	80	20
6	5	90	10
5	...	100	0

The contribution of the state shall remain one-fifth of the total.

Sec. 25. Amount of contributions. The amount of the contributions shall be computed so as to be sufficient for the payment of benefits and the expenses of administration of the association and necessary reserve and guarantee funds.

Sec. 26. Payment of contributions. Every employer shall pay to any local health or local trade health association on the date on which he pays his men, or at least monthly, the total contributions due from him and from his employees to such association. He may deduct from the wages paid any employee the share of that employee in the contribution which shall be in proportion to his wages, but must inform him, in a method to be approved by the commission, of the amount so deducted. Approved societies shall provide by regulation, to be approved by the commission, for the payment of contributions by their members.

Sec. 27. Calculation of payments. Payments required from the employer by the preceding section shall be based upon his total expenditures for wages and salaries of employees covered by section three of this chapter during the period for which payment is made.

Sec. 28. Rates of contributions. In associations in which employees in several industries are insured, payments required from employers of such employees may be fixed at different amounts for different industries according to the degree of sickness hazard in those industries.

Sec. 29. Establishments with excessive rate of sickness. Any association shall have the right, subject to the approval of the commission, to increase the rate of contribution of any employer whose establishment shows an excessive rate of sickness, such additional contribution to be payable by the employer without right of deduction from the wages of the employee.

ARTICLE 4.

CARRIERS.

Section 30 Division of the state into districts.
31. Establishment of associations.
32. Consolidation or division of district.
33. Establishment of local trade health associations.
34. Authorization by commission.
35. Powers of associations.
36. Constitution of associations.
37. Committee of the association.
38. Employers' votes.
39. Board of directors.
40. Powers of the board.
41. Officers' bonds.
42. Reserve.
43. Membership in association.
44. Voluntary insurance.
45. Loss of voluntary membership.
46. Fines and penalties.
47. Approved societies.
48. Employers' contributions.
49. State contributions.
50. Organization of wage groups permitted.
51. Power to fix wages.
52. Health insurance union.

Sec. 30. Division of the state into districts. The commission shall, within six months after this chapter goes into effect, divide the state into districts, no one of which shall contain less than five thousand persons subject to compulsory insurance.

Sec. 31. Establishment of associations. The commission shall before January first, nineteen hundred and seventeen, hold one or more hearings in each district, notice of which shall be given by advertisement in at least one newspaper published in the district and by any other method approved by the commission, and shall thereafter establish one or more local health associations, and in their discretion may establish one or more trade health associations in such district. The commission shall then provide in each district for the election of delegates, half of whom shall be elected by employers, half by employees affected, to conventions which shall have power to adopt constitutions. The expense of the elections and conventions shall be paid by the state as expenses of the commission are paid.

Sec. 32. Consolidation or division of districts. The commission at any time on its own motion or on the petition of the board of directors of any local health or local trade health association may consolidate two or more districts, or detach a territory from one district and annex it to another, or create a new district from parts of several districts or from one district already in existence, and shall make such disposition of the property of the dissolved association as shall seem to it proper.

Sec. 33. Establishment of local trade health association. Employers whose principal places of business are within the same district and employing two hundred and fifty employees in the same trade, or two hundred and fifty employees employed in the same trade by employers whose principal places of business are within the same district, may petition the commission for the formation of a local trade health association, and the commission, after a hearing within the district which shall be duly advertised and notice of which shall be sent to the boards of directors of the local health and local trade health associations within the district, may authorize the formation of a local trade health association if there be no other local trade health association within the district for the trade and if the establishment of the new local trade health association will not impair the solvency of the local health association or of any local trade health association in the district.

Sec. 34. Authorization by commission. No association shall begin business until it is authorized by the commission. The commission shall authorize an association only after approval and filing of its constitution and after the names and addresses of the board of directors elected for the first year have been filed with the commission.

Sec. 35. Powers of associations. Associations shall be corporations and shall have all the power necessary to carrying out their duties under this chapter, including the power to verify by audit payrolls of employer members for the purpose of determining contributions for which employer members are liable.

Sec. 36. Constitution of association. Subject to the provisions of this chapter, the constitution of an association shall contain:

Name of the association and location of its principal office;

If the association is a local trade health association, designation of the trade or trades for which it is created;

Maximum percentages of wages, as provided in section twenty-seven, fifty and fifty-one of this chapter, at which the regular contribution may be fixed, which maximum shall not exceed three per centum of such total except with the approval of the commission, and shall in no case exceed five per centum of such total;

Nature and amount of benefits and length of time during which they shall be given;

Manner of election, number, powers, duties, and time of meeting of the committee;

Number, powers, duties, and time of meeting of the board of directors;

Method of amendment of constitution;

And such other provisions as may be directed by the commission.

Sec. 37. Committee of the association. There shall be a committee of each association which shall consist of not less than twenty and not more than one hundred members, to be elected in the manner provided in the constitution, one-half by and from the employer members of the fund, one-half by and from the employee members. The committee shall cause an audit of the accounts of the association to be made each year, and shall pass upon the same and upon the annual report and budget of the board of directors.

Sec. 38. Employers' votes. Each employer member shall have as many votes for employer members of the committee as he employs workmen subject to the insurance and members of the association, except that no one employer shall have more than forty per centum of the total vote unless otherwise provided in the constitution.

Sec. 39. Board of directors. The board of directors shall be elected by the committee for a period of one year. All directors must be citizens of the United States and a majority of them must be residents of this state. The board shall consist of not less than eight and not more than eighteen directors, one-half of whom shall be elected by employer members of the committee, and one-half elected by employee members of the committee. No one shall be a member of the committee and a director at the same time. The compensation of members of the board shall not be more than five dollars a day for each day of attendance upon the meetings of the board.

Sec. 40. Powers of the board. The board shall: Fill vacancies in its own number for unexpired terms, provided that only employers' representatives shall vote for employer directors, only employees' representatives for employee directors; appoint all officers and employees of the association and fix their salaries; elect a president and secretary from their own number; make regulations necessary for carrying out the purposes of the association; make contracts with physicians, nurses, hospitals, dispensaries, pharmacists, institutions and associations and any other persons necessary for the business of the association; prepare and submit to the committee annually a financial account and a report for the past year and a budget for the ensuing year; represent the association and direct and administer its affairs except as otherwise specified in this chapter.

Sec. 41. Officers' bonds. All executive and judiciary officers of the association shall be bonded for amounts to be determined by the board of directors with the approval of the commission.

Sec. 42. Reserve. Every association shall accumulate a reserve fund. The board of directors shall transfer to such fund one-twentieth of the annual income of the association until such fund is equal to one-sixth of the total expenditures for the preceding three years. The fund shall be maintained at this level. Any surplus which may accrue from the investment of such fund may be transferred into the general account of the association.

Sec. 43. Membership in association. Every person subject to insurance shall be an insured member of the local trade health association of the trade at which and in the district in which he is employed; or if there be no such association, of a local health association of such district; provided that while he is a member of an approved society he shall be excluded by the board of directors from membership in an association. The commission shall provide by regulation for the case of persons regularly occupied at one trade but temporarily employed at another. Membership in local health or local trade health associations shall cease as soon as the insured becomes a member of another local health or local trade health association. Any employer shall be an employer member of all associations of which any of his employees are members.

Sec. 44. Voluntary insurance. A person entitled to voluntary insurance shall be admitted on application to membership in the local trade health association of his trade in the district in which he is employed, or if there be no such association, then a local health association, of such district; provided, that any association may prohibit by regulation the admission to voluntary insurance of a person who has not passed a satisfactory medical examination by its medical officers, and that the application for admission be subject to the same condition as an application for insurance. The contribution of the voluntary member shall be equal to the contribution required of the employer and employee for a compulsory member of the same trade and earnings.

Sec. 45. Loss of voluntary membership. A person voluntarily insured shall lose his membership, if he acquire membership, either voluntary or compulsory, in another association or society, or if he be in arrears for one month in the payment of his contributions, unless this period be extended by the association.

Sec. 46. Fines and penalties. Associations may fine their employer and insured members and suspend insured members from benefit for violation of their rules or regulations or for fraudulent representations made with the intent of securing or aiding another to secure benefits, in accordance with rules approved by the commission providing for and limiting such fines or suspensions. If an employer fail or refuse to pay any contribution due to the carrier under this chapter, the carrier to whom the contribution is due may recover the whole amount of contributions due from such employer and his employee with interest at six per centum by suit in a court of competent jurisdiction, and the employer shall not be entitled to deduct any part of such sum from the wages of his employee or employees.

Sec. 47. Approved societies. A labor union, benevolent or fraternal society or an establishment society shall be approved by the commission only after hearing the local health or local trade health association affected and only if:

It is not carried on for profit, but reasonable salaries paid officials shall not be considered profit;

It is under the absolute control of the insured members in so far as the insurance regulated by this chapter is affected, except that the employer may appoint one-half of the governing body of an establishment society;

It shall satisfy the commission that it is in a sound financial condition;

It grants at least the minimum benefits provided in this chapter;

It has a membership of at least five hundred persons insured for at least the minimum benefits provided under this chapter or their equivalent, except that in the case of establishment societies in which the employer satisfactorily guarantees the payment of benefits, the number of members may be fixed by the commission;

Its operation will not, in the opinion of the commission, endanger the existence of any local health or local trade health association;

In case of an establishment society, a majority of the employees subject to insurance request approval, and the employer's contribution be at least equal to that of all the employees.

The approval of the commission may be withdrawn at any time upon its finding, after hearing the society affected, that any of the required conditions are no longer satisfied. The commission may, after a hearing, permit an establishment society to accept, on conditions satisfactory to the commission, as members all persons subject to insurance in its district.

Sec. 48. Employers' contributions. The commission shall assess upon every employer any of whose employees are insured in labor union, benevolent or fraternal societies, a sum equivalent to the employer's contributions had such employees been members of associations. This sum shall be paid in monthly instalments into the guarantee fund established by the commission.

Sec. 49. State contributions. The state shall contribute to every approved society one-fifth of its total expense for health insurance under this chapter, subject to the provisions of section sixty-one.

Sec. 50. Classification by wage groups permitted. An insurance carrier may, with the approval of the commission, provide for the classification of its members into wage groups, each insured member in the same group to be entitled to the same rate of benefits, instead of benefits calculated as provided in sections twelve and thirteen and payment of contributions shall be made accordingly, instead of as provided in section twenty-seven of this chapter.

Sec. 51. Power to fix wages. Any carrier may fix the average wages or may fix the average gratuities received in any employment or branch thereof and, on the approval of the commission, such amounts shall be conclusive on all its members, except that the average wages shall not apply to section twenty-seven.

Sec. 52. Health insurance union. Two or more health insurance carriers may combine for the administration of the medical benefit subject to the approval of the commission. The commission may, after notice to and hearing of the parties of interest, withdraw its approval and dissolve the union, making such disposition of its property as may seem to it in the best interests of the insured.

ARTICLE 5.

COMMISSION.

Section 53. State social insurance commission.
54. Secretary.
55. Officers and employees.
56. Salaries and expenses.
57. Offices.
58. Powers of individual commissioners.
59. Powers of commission.
60. Payment of state contribution.
61. Guarantee fund.
62. State treasurer custodian of fund.
63. Report of commission.
64. Social insurance council.
65. Officers of council.
66. Meetings of council.
67. Duties of council.
68. Settlement of disputes.
69. Suits at law.

Sec. 53. Social insurance commission. A social insurance commission is hereby created, consisting of three commissioners, to be appointed by the governor, one of whom shall be designated by the governor as chairman. The term of office of members of the commission shall be six years, except that the first members thereof shall be appointed for such terms that the term of one member shall expire on January first, nineteen hundred and eighteen, one on January first, nineteen hundred and twenty; and one on January first, nineteen hundred and twenty-two. Each commissioner shall devote his entire time to the duties of his office, and shall not hold any position of trust or profit, or engage in any occupation or business interfering or inconsistent with his duties as such commissioner, or serve on or under any committee of a political party. The commission shall have an official seal which shall be judicially noticed.

Sec. 54. Secretary. The commission shall appoint and may remove a secretary, at an annual salary of five thousand dollars. The secretary shall perform such duties in connection with the meetings of the commission and its investigations, hearings and the preparation of rules and regulations under the provisions of this chapter as the commission may prescribe.

Sec. 55. Officers and employees. The commission may appoint such officers, other assistants and employees as may be necessary for the exercise of its power and the performance of its duties under the provisions of this chapter, all of whom shall be in the competitive class of the classified civil service; and the commission shall prescribe their duties and fix their salaries which shall not exceed in the aggregate the amount annually appropriated by the legislature for that purpose.

Sec. 56. Salaries and expenses. The chairman of the commission shall receive an annual salary of six thousand five hundred dollars and each other commissioner an annual salary of six thousand dollars. The commissioners and their subordinates shall be entitled to their actual and necessary expenses while traveling on the business of the commission. The salaries and compensation of the subordinates and all other expenses of the commission shall be paid out of the state treasury upon vouchers signed by the chairman or one of the commissioners designated by him for that purpose.

Sec. 57. Offices. The commission shall have its main office in the capitol of the state and may establish and maintain branch offices in New York city and in other cities of the state as it may deem advisable. Branch offices shall, subject to the supervision and direction of the commission, be in immediate charge of such officials or employees as it shall designate.

Sec. 58. Powers of individual commissioners. Any investigation, inquiry or hearing which the commission is authorized to hold or undertake may be held or undertaken by or before any commissioner, and the award, decision or order of a commissioner when approved and confirmed by the commission and ordered filed in its office shall be deemed to be the award, decision or order of the commission. Each commissioner shall for the purpose of this chapter have power to administer oaths, certify to official acts, take depositions, issue subpœnas and compel the attendance of witnesses and the production of books, accounts, papers, records, documents and testimony.

Sec. 59. Powers of commission. The commission may adopt all reasonable rules and regulations and do all things necessary to put into effect the provisions of this chapter.

Sec. 60. Payment of state contribution. The commission shall estimate the state contribution annually before the first of January of each year and shall, before that date, apportion it among the carriers in proportion to their estimated expenditures for the purpose of this chapter during the year and shall notify the state treasurer of the sum to be paid on March thirty-first, June thirtieth, September thirtieth and December thirty-first of the current year to each carrier. The treasurer shall pay the amount out of the unexpended balance of any appropriation in his hands for the purpose.

Sec. 61. Guarantee fund. The commission shall reserve ten per centum of the contributions of the state to the carriers and pay it into a fund to be known as the guarantee fund, from which it may contribute for the relief of any carrier, on the application of its board of directors after investigation by the commission. A contribution shall be made only where, in the judgment of the commission, the necessity arises from epidemic, catastrophe or other unusual conditions, and shall never be made where, in the opinion of the commission, the deficit is due to failure or refusal of the directors to levy proper rates of contributions. When and so long as, in the opinion of the commission, the guarantee fund is sufficient, the commission shall make no reservation for this purpose.

Sec. 62. State treasurer custodian of fund. The state treasurer shall be the custodian of the state guarantee fund; and all disbursements therefrom shall be paid by him upon vouchers authorized by the commission and signed by the chairman or another member designated by him in writing. The state treasurer shall give a separate and additional bond in an amount to be fixed by the governor and with sureties approved by the state comptroller conditioned for the faithful performance of his duty as custodian of the guarantee fund. The state treasurer may deposit any portion of the fund not needed for immediate use, in the manner and subject to all the provisions of law respecting the deposit of other state funds by him. Interest earned by such portion of the guarantee fund deposited by the state treasurer shall be collected by him and placed to the credit of the fund.

Sec. 63. Report of commission. Annually on or before the first day of February the commission shall make a report to the governor, which he shall lay before the legislature, which shall include a statement of the apportionment of the state contributions, statistics of sickness experience under this chapter, a detailed statement of the expenses of the commission, the condition of the state guarantee fund, together with any other matter which the commission deems proper to report, including any recommendations it may desire to make.

Sec. 64. Social insurance council. The social insurance council shall consist of twelve members, six of whom shall be elected by employer directors and six by employee directors of the local health and local trade health associations; their term of office shall be two years, except that in the first election three of the employer and three of the employee members of the council shall be elected for one year; they shall receive a compensation of five dollars a day for each day spent on the business of the council and shall be reimbursed for reasonable expenses incurred in connection with such business, to be paid as other expenses of the commission are paid.

Sec. 65. Officers of council. The council shall elect a president from its own number; the secretary of the commission shall act as the secretary of the council.

Sec. 66. Meetings of council. The council shall meet during the first week of January, of April, of July, of September, each year. Special meetings shall be called by the president on the request of at least five members of the council or of two members of the commission at any time.

Sec. 67. Duties of council. The annual report and recommendations of the commission shall be laid before the January meeting of the council before transmission to the governor, and the council may approve them or make a separate report and recommendations to the governor. All general regulations proposed by the commission shall be laid before the council at a regular or special meeting for discussion before final adoption, except in cases of urgency to be determined by the commission, and in this case the regulation shall be laid before the next regular meeting of the council or a special meeting called for the purpose.

Sec. 68. Settlement of disputes. All disputes arising under this chapter shall be determined by the social insurance commission either on appeal from the proper authority or from the carrier or, in case of disputes between carriers, by original proceedings. The commission may assign any dispute for hearing and determination to a dispute committee composed of one employer and one employee member of the council, and a member of the commission, as chairman, the members of the council to serve in turn on the dispute committee for periods of one month; either party may appeal from the decision of the dispute committee to the commission within thirty days from the date of rendering the decision.

Sec. 69. Suits at law. .Suit shall not be brought in any court on any matter on which an appeal is allowed to the commission, until after a decision by the commission or of a dispute committee, and the statutes of limitations shall not begin to run in such cases until after decision of the commission or dispute committee is filed.

ARTICLE 6.

Miscellaneous Provisions.

Section 70. Limitation of claims.
71. Disclosures prohibited.
72. Technical rules of evidence or procedure not required.
73. When to take effect.

Sec. 70. Limitation of claims. No claim for benefit shall be valid unless made to the board of directors of the proper carrier within one year from the time when the benefit was due.

Sec. 71. Disclosure prohibited. Information acquired by the commission or any association or any of their officers or employees, from employers or employees pursuant to this chapter, shall not be open to public inspection, and any officer or employee of the commission who, without authority of the commission or pursuant to its rules or as otherwise required by law, shall disclose the same shall be guilty of a misdemeanor.

Sec. 72. Technical rules of evidence or procedure not required. The commission or a commissioner or appeal committee in making an investigation or inquiry or conducting a hearing shall not be bound, by common law or statutory rules of evidence or by technical or formal rules of procedure, except as provided by this chapter; but may make such investigation or inquiry or conduct such hearing in such manner as to ascertain the substantial rights of the parties.

Sec. 73. When to take effect. This chapter shall take effect immediately, except that the provisions as to the payment of contributions shall not take effect until January first, nineteen hundred and seventeen, and the first payment of contributions by the state shall not be made until March thirty-first, nineteen hundred and seventeen; the provisions as to the benefits shall not take effect until April first, nineteen hundred and seventeen, provided that if a carrier is authorized after January first, nineteen hundred and seventeen, the provision as to the benefits shall not take effect until three months after authorization.

Bills Introduced Into the Legislature.

IN SENATE.

January 5 to February 25, 1916.

Concurrent resolution amending section 11, article 8, Constitution, by providing that the management and fiscal control of State Hospitals for the Insane (not including institutions for criminals or convicts), shall remain in the State Commission in Lunacy, except in so far as such management may now or hereafter be delegated by the Legislature to the local boards of managers. By Mr. Bennett. To Judiciary Committee. Printed No. 37. Int. 37.

Adding new section 88 to the Public Health Law, providing that hereafter no institution for the care of mental or other diseases or for correctional or charitable purposes shall be located or constructed by the state or any municipal or other corporation or person upon any territory within the Croton watershed. By Mr. Wagner. To Finance Committee. Printed No. 59. Int. 59.

Amending section 249-d, Public Health Law, by making it a felony to sell or give away habit-forming drugs to any person otherwise than as permitted by the act. Now this penalty applies only to the sale to children under 16 years of age. (Same as A. 17.) By Mr. Hamilton. To Public Health Committee. Printed No. 66. Int. 66.

Amending section 21, Public Health Law, by striking out the present limitation upon the amount of compensation of local health officers to the equivalent of ten cents per inhabitant in cities, towns and villages of 8,000 or less, and $800 per annum in cities, towns and villages of more than 8,000. (Same as A 13.) By Mr. Walton. To Public Health Committee. Printed No. 79. Int. 79.

Adding new section 238-a to Public Health Law, prohibiting the sale at retail of bichloride of mercury in dry form, except in tablets of distinctive form and color, labeled "poison" on each tablet, and dispensed in sealed glass containers, conspicuously labeled "poison" in red letters. This section does not apply to any preparation containing one-tenth of a grain or less of bichloride of mercury. By Mr. Gilchrist. To Public Health Committee. Printed No. 82. Int. 82.

Amending subdivision 7, section 4, Tax Law, by providing that the real and personal property of a corporation or association organized exclusively for religious or hospital purposes shall be exempted from taxation. The real property of other non-business corporations at present exempted by the section are exempted from taxation only to the extent of 75 per cent of the amount of the assessment, which assessment is to be made the same as upon other real property in the tax district. (Same as A. 219.) By Mr. Slater. To Taxation and Retrenchment Committee. Printed No. 94. Int. 94.

Adding new section 88 to Public Health Law, providing that hereafter no institution for the care of mental or other diseases or for correctionable or charitable purposes shall be located or constructed or located upon or in any territory drained by streams or tributaries of streams used by the City of New York for water supply purposes, and relative to who may restrain the construction or maintenance of such institutions. By Mr. Wagner. To Public Health Committee. Printed No. 193. Int. 193.

Adding new article 26-c to Education Law, prohibiting experimentation upon living animals in the common schools of the State. (Same as A. 366.) By Mr. Boylan. To Judiciary Committee. Printed No. 258. Int. 258.

Giving the Board of Regents supervision over experiments on living animals within the State and providing for appointment by the regents of the necessary number of assistants. (Same as A. 367.) By Mr. Boylan. To Judiciary Committee. Printed No. 259. Int. 259.

IN ASSEMBLY.

Amending section 21, Public Health Law, by striking out the present limitation upon the amount of compensation of local health officers to the equivalent of ten cents per inhabitant in cities, towns and villages of 8,000 or less, and $800 per annum in cities, towns and villages of more than 8,000. (Same as S. 79.) By Mr. DeWitt. To Public Health Committee. Printed No. 13. Int. 13.

Amending section 249-d, Public Health Law, by making it a felony to sell or give away habit-forming drugs to any person otherwise than as permitted by the act. Now this penalty applies only to the sale to children under 16 years of age. (Same as S. 66.) By Mr. Fertig. To Public Health Committee. Printed No. 17. Int. 17.

Amending section 249-d, Public Health Law, by making the second and subsequent violations of the provisions of section 245 or 246 relative to the sale and possession of habit-forming drugs, a felony. By Mr. Evans. To Public Health Committee. Printed No. 57. Int. 57.

Adding new section 1083 A. to Greater New York Charter, providing for free eyeglasses and free dental treatment for pupils in the public schools in New York City. By Mr. Goodman. To Cities Committee. Printed No. 69. Int. 69.

Abolishing the Mohansic State Hospital and providing for the sale of the site thereof. (Same as S. 119.) By Mr. Adler. To Ways and Means Committee. Printed No. 85. Int. 85.

Amending section 21, Public Health Law, by striking out the present requirement that the compensation of health officers in cities, towns and villages with a population of 8,000 or less shall not be less than the equivalent of ten cents per annum per inhabitant, and in cities, towns and villages with a greater population, not less than $800 per annum. By Mr. Chase. To Public Health Committee. Printed No. 110. Int. 110.

Legalizing the acts and proceedings of the Oswego County Tuberculosis Hospital board of managers in appointing Dr. Alva G. Dunbar superintendent of the hospital. (Same as S. 151.) By Mr. Machold. To Internal Affairs Committee. Printed No. 179. Int. 179.

Adding new section 249-e to Public Health Law, providing that habit-forming drugs seized pursuant to law within New York City shall be delivered to the department of charities and corrections to be applied by the department for lawful hospital uses in the city. Those seized elsewhere are to be delivered to the hospital authorities of the county or municipality where seized, as the district attorney may direct, for lawful hospital uses. By Mr. Bloch. To Public Health Committee. Printed No. 214. Int. 214.

Amending subdivision 1, section 166, Public Health Law, by providing that in addition to other qualifications, an applicant for admission to examination for a license to practice medicine must be a citizen and resident of the State. To Public Health Committee. Printed No. 336. Int. 336.

Adding new article 26-c to Education Law, prohibiting experimentation upon living animals in the common schools of the State. (Same as S. 258.) By Mr. Mahony. To Public Education Committee. Printed No. 367. Int. 366.

Giving the Board of Regents supervision over experimentation on living animals within the State and providing for appointment by the regents of the necessary number of persons to assist them. (Same as S. 259.) By Mr. Mahony. To Public Education Committee. Printed No. 368. Int. 367.

Amending section 1, chapter 713, Laws of 1915, by providing for the construction of a trunk sewer from the Mohansic State Hospital grounds at Yorktown to the Hudson river, of sufficient dimensions to meet the needs of the hospital and of the New York State Training School for Boys, plans therefor to be approved by the State Commissioner of Health. By Mr. Hopkins. To Ways and Means Com. Printed No. 414. Int. 407.

Amending sections 160, 166, 169, 170 and 174, Public Health Law, generally, relative to the practice of medicine, unprofessional conduct by physicians, requirements for a physician's license, registration of physicians, and relative to the disposition of fines collected for violations. By Mr. Schimmel. To Public Health Committee. Printed No. 449. Int. 441.

Notes from the State Department of Health

MIDWIFE INSPECTION IN STATE OF NEW YORK.

During the last year over four hundred midwives were licensed by the State Department of Health. The state supervising nurses visited and instructed most of these women; they were scattered over thirty-six counties. Many other women were found to be practicing without a license, unknown to the authorities of the community, for they were not reporting births. Usually they were unaware that there was any law governing the matter. They were found in most out-of-the-way places, in many of which medical assistance could not be secured when needed. A licensed midwife who would report the births attended was a necessity in such places. Mountain districts remote from any medical service, little groups of foreign people near quarries or mountain camps, settlements on the fringe of larger communities were found where it was impossible to get a physician in the night. Telephone service is not to be found in these places.

In one county where there were ten licensed midwives, fifteen were found to be practicing without licenses. Those who were licensed had delivered forty-nine children during the present year, and the unlicensed women admitted having delivered during the same period a total of seventy-eight. Two women were found who had never heard of being licensed or reporting births, and who admitted that they each probably delivered 100 children a year. Catholic priests who speak the foreign languages which these people understand are giving very good asistance in inducing suitable women to qualify for a license, and to report every birth attended. How essential suitable care is in these districts may be judged from the fact that a dead mother and her new-born infant, also dead, had a short time previously been found in a cabin on the mountain side where they had been overtaken alone in their hour of need.

C. Josephine Durkee,
Director, Division of Public Health Nursing.

Medical Society of the State of New York

Meeting of the Council.

A meeting of the Council of the Medical Society of the State of New York was held at the State Society rooms, 17 West 43d Street, January 21, 1916 at 10.30 A. M. Dr. W. Stanton Gleason, President, in the chair. Dr. Wisner R. Townsend, Secretary.

The meeting was called to order by the President and on roll call the following answered to their names: Drs. W. Stanton Gleason, Henry L. Winter, Thomas H. McKee, Wisner R. Townsend, Alexander Lambert, Thomas J. Harris, Joshua M. Van Cott, Frank Van Fleet, James E. Sadlier, James S. Cooley, William D. Garlock, William T. Shanahan, Carl G. Leo-Wolf, Albert E. Sellenings and Mr. James Taylor Lewis.

Letters were read from Drs. Rooney, Ferris, Ransom and Leary regretting their inability to be present.

A quorum being present, Dr. Gleason announced the meeting open for business.

Moved, seconded and carried that the reading of the minutes of the previous meeting, held December 10, 1915, be dispensed with.

The Secretary stated that this meeting had been called in accordance with the following petition:

We, the undersigned, respectfully request the President of the Medical Society of the State of New York, to call a meeting of the Council to consider legislative matters, including the report of the Committee to consider changes in the Medical Practice Act, which was appointed by the Council at its last meeting.

Alexander Lambert,
Thomas J. Harris,
Frank Van Fleet,
Wisner R. Townsend,
Joshua M. Van Cott.

The report of the Committee appointed by the Council to consider the proposition of introducing a bill to give added power to the Regents to control advertising and fee splitting by the profession was then read.

The Committee appointed by the Council at the meeting held December 10th, unanimously recommends that the Committee on Legislation of the Medical Society of the State of New York oppose any bill or bills giving the power to the Board of Regents to regulate or control in any way the ethics of the medical profession.

Respectfully submitted,

Frank Van Fleet, *Chairman.*
W. Stanton Gleason.
James E. Sadlier.
Wisner R. Townsend.

December 18, 1915.

I was present at this meeting and endorse the resolution. Samuel J. Koptezky, Member Committee on Legislation, State Society.

Moved and seconded that the report be adopted.

A substitute motion was moved, seconded and carried that the report be referred back as a whole to the Committee for reconsideration.

Moved, seconded and carried that the Council take a recess of fifteen minutes.

The meeting re-convened at 11.45.

Dr. Van Fleet, chairman, reported that the Committee desired to withdraw the report already presented and to substitute the following:

The Medical Society of the State of New York as represented by its Council, desires to put itself on record as opposed to fee splitting and advertising but at the same time considers that the present law which gives the Regents the power to revoke licenses is all that is necessary.

Moved and seconded that the report be adopted. Carried. Dr. McKee voted in the negative.

Moved and seconded that a committee be appointed to consider the advisability of the establishment of a permanent body within the State Society, to act as an intermediary between it and the Board of Regents; that the committee should be appointed by the Chair and consist of five members including the Chairman. Motion carried. Dr. Leo-Wolf voted in the negative.

The Chair appointed Drs. Henry Lyle Winter, Alexander Lambert, James E. Sadlier, Frank Van Fleet and Thomas H. McKee.

The Secretary read a letter from Dr. Rooney, Chairman of the Committee on Legislation, regretting his inability to be present and asking advice as to various measures pending before the legislature.

Moved, seconded and carried that no action be taken on a proposed bill to make physicians preferred creditors of decedent estates.

Moved, seconded and carried that bills not already acted upon by the Council be referred to the Committee on Legislation with power to act, and that the Committee be instructed to oppose any bills inimical to the best interests of the public and to the profession and that it support all bills which in its opinion are to the interests of the public and of the profession.

Moved and seconded that in the event of a bill being introduced into the Legislature in regard to health insurance, the Council recommends that the subject be referred to a Commission of the Legislature for a report at the next meeting of the Legislature.

There being no further business the meeting adjourned at 12.15.

Wisner R. Townsend,
Secretary.

County Societies

MEDICAL SOCIETY OF THE COUNTY OF ERIE.

Annual Meeting, Buffalo, N. Y.

December 20, 1915.

The Ninety-fourth Annual Meeting was called to order in Townsend Hall at 8.30 P. M. by President Hurd.

President Hurd announced that the annual election of officers would be held at this meeting and called for any further nominations to those which had already been made at the regular October meeting. On motion of Dr. Hopkins nominations were declared closed. no further nominations being made. The motion was carried.

President Hurd then appointed the following tellers: Drs. Woodruff, Sharp and Lytle.

Treasurer Lytle submitted his annual report, which show the number of members in good standing as 647. Number of members who died during the year, 4. Number resigned, 0. Removed to other counties, 4. Retired, 4. Number of members in arrears with their dues, 79. Total receipts during the year, $3,426.07, of which there was a balance on hand of $1,514.00, the remainder having been paid in dues to the Medical Society of the State of New York and for current expenses. The Treasurer's report was adopted.

The Secretary then read the minutes of the regular meeting held October 18, 1915, and also the minutes of the Council held December 18, 1915, both of which were adopted as read.

Dr. William F. Jacobs, Chairman of the Committee on Membership reported favorably upon the following list of applicants, each of whom were separately balloted for and elected: Albert A. Gartner, Carlton E. Werts, Frank Kruse, Herbert E. Wells, Herbert H. Bauckus, August Lascola, Baldwin Mann, Howard John Ludwig, Arnold H. May, Harvey P. Hoffman.

President Hurd expressed the thanks of the Society to Chairman Jacobs for his activity in securing new members during the past year.

Reports of officers were then called for.

Dr. John D. Bonnar, Chairman of the Board of Censors presented the report of the Board and also that of the attorney, Mr. Alfred L. Harrison. An interesting feature of Chairman Bonnar's report was that among the persons prosecuted for the illegal practice of medicine was a chiropractor, who was fined $25, which the censors considered as establishing a precedent or record, this being the first conviction. Dr. Bonnar was given a vote of thanks for his activity during the past year.

Dr. Henry R. Hopkins, Chairman, Committee on Public Health submitted his annual report, which was a review of the activities of this Society in the matter of securing better medical education and a higher medical standing. In 1871 the Medical Society of the County of Erie began the first agitation, which finally resulted in passing a State Law in 1891 requiring a State license for the practice of medicine. Doctor Hopkins' report then went into economic, hygiene and other conditions, and ended by submitting the following resolution:

Resolved, That the Medical Society of the County of Erie, State of New York, hereby makes record of its conviction that to Americans the subject of Forestry is a matter of enormous vital significance; that to the medical profession of America the subject should appeal as to no other group of our citizens; that records should be made and repeated by medical societies, county, state and national, urging upon those in authority the importance of the most intelligent study of this question of Forestry to the end that suitable action by our Governments, state and national, be taken in this our most vital problem.

Resolved, That these resolutions be transmitted under the seal of this Society to the Medical Society of the State of New York, with the request that the same receive due consideration and if approved that the matter be brought to the attention of the American Medical Association at its next meeting.

Resolutions as submitted were adopted and the entire report was then approved.

President Hurd expressed the appreciation of the Society to Dr. Hopkins for his valuable report.

Dr. John V. Woodruff, Chairman of the Committee on Economics then submitted his annual report. This was the first report since this committee was created. It was a very exhaustive resume of contract practice in this city of which more than 230,000 people are obtaining medical service at a nominal cost of $1.00 per year. The report was adopted with the thanks of the Society.

On motion of Dr. Bonnar the polls were declared closed and the tellers then presented the result of the ballot, by which the following were declared duly elected: President, Franklin W. Barrows; First Vice-President, Irving W. Potter; Second Vice-President, John C. Thompson; Secretary, Franklin C. Gram; Treasurer, Albert T. Lytle; Censors: John D. Bonnar, Francis E. Froncsak, Arthur G. Bennett, Archibald D. Carpenter and Frank A. Valente; Chairman Committee on Legislation, Harvey R. Gaylord; Chairman Committee on Public Health, Nelson G. Russell; Chairman Committee on Membership, William F. Jacobs; Chairman Committee on Economics, John V. Woodruff; Delegates to the State Society: Arthur G. Bennett, Albert T. Lytle, Julius Richter, Franklin W. Barrows.

The President then called President-elect Barrows to the chair and read his annual address.

The Presidential address was a resumé of some of the most important progress in scientific medicine.

The thanks of the Society was tendered the retiring President after which the meeting adjourned.

MEDICAL SOCIETY OF THE COUNTY OF FRANKLIN.

Annual Meeting, Malone, N. Y.
December 14, 1915.

The Sixty-ninth Annual Meeting was called to order by the president, Dr. J. Woods Price, at 11 o'clock A. M.

The minutes of the last meeting were read and approved.

Annual Reports of the Secretary and Treasurer were read and by vote were accepted as read.

The following officers were elected for the ensuing year:

President—A. L. Rust, of Malone.

Vice-President—W. N. MacArtney, of Fort Covington.

Secretary-Treasurer—G. M. Abbott, of Saranac Lake.

Delegate to State Medical Society—J. A. Grant, of Malone. Alternate—F. W. McCarthy, of North Bangor.

William H. Kingston, M.D., of Hogansburgh, was elected to membership.

A communication was read from the Secretary of the New York State Committee for the Prevention of Blindness. After some discussion it was decided that the president should make this subject part of one of the regular meetings of the year.

After a dinner at the Flanagan Hotel the Scientific Session was called to order at 2.30.

Presidential Address—J. Woods Price, M.D., Saranac Lake.

Obituary Sketch of the late Edward Livingston Trudeau, M.D., by J. Woods Price, M.D., Saranac Lake.

At the conclusion of this sketch the following resolutions were adopted by a rising and silent vote:

Whereas, Almighty God in His divine wisdom has seen fit to take from us our most distinguished member, Edward Livingston Trudeau, Doctor of Medicine, Doctor of Science, Doctor of Laws, and Leader in the Anti-Tuberculosis Campaign in the United States, be it

Resolved, That the Medical Society of the County of Franklin express its sincere sympathy to his bereaved family in their great sorrow, and be it further,

Resolved, That the Society give expression of its own sense of loss by a rising and silent vote and by the spreading of these resolutions upon its records.

J. Woods Price, *President.*
G. M. Abbott, *Secretary.*

Obituary sketch of the late Reuben W. Van Dyke, M.D., by P. F. Dolphin, M.D., Malone.

"Laryngeal Tuberculosis," by M. F. Lent, M.D., Lake Kushuqua.

"Preliminary Report of Thirty Cases of Appendicitis in Tuberculosis," by R. M. Brown, M.D., Saranac Lake. Discussed by H. M. Kinghorn, M.D.

"Tooth in Bronchus: Removal by Operation," a case report by H. M. Kinghorn, M.D., Saranac Lake.

"Intrathoracic Tumor," a case report, illustrated by radiographs, by H. A. Bray, M.D., Ray Brook.

"Typhoid Carriers," by B. R. Wakeman, M.D., State Sanitary Supervisor, Hornell.

MEDICAL SOCIETY OF THE COUNTY OF ALBANY.

Regular Meeting, Albany, N. Y.
December 17, 1915.

SCIENTIFIC SESSION.

"Health Work in Albany," by Arthur Sautter, M.D., Albany.

"The Functions of the State Department of Health; Its Activities and Results," by Linsly R. Williams, M.D., Albany.

"Clinical and Anatomical Classifications of Pulmonary Tuberculosis." "The Newer Explanations of the Genesis of Types, with X-Ray Plate Demonstration," by Albert H. Garvin, M.D., Ray Brook.

MEDICAL SOCIETY OF THE COUNTY OF YATES.

Annual Meeting, Penn Yan, N. Y., Tuesday,
January 4, 1916.

After partaking of a sumptuous turkey dinner and enjoying the delightful orchestral music rendered by the Misses Craughs, we were called to order in the "Senate" by the President, Dr. H. W. Matthews.

After attending to several unfinished matters the question of building a new hospital in Penn Yan was discussed, plans were inspected, and ways and means were discussed for financing the project. The following committee was appointed to arouse sentiment in favor of the new building: E. Carlton Foster, Franklin S. Sampson, George E. Stevenson and Charles Doubleday.

A vote of confidence was given to Dr. Martin B. Tinker, of Ithaca, in his candidacy as President of the State Medical Society for the coming year.

The following resolution was read and approved:

Resolved, That the Yates County Medical Society indorses the present Public Health Law, and especially the portion fixing the salary of the health officers.

The following officers were elected for 1916:

President G. Howard Leader, Penn Yan; Vice-President, James McDowell; Treasurer, Edward M. Scherer, Penn Yan; Secretary, George E. Welker, Dresden. Censors: Charles E. Doubleday, George E. Stevenson, Penn Yan, and Feston E. Chaffee, Middlesex. Committee on Membership: Edward M. Scherer, John A. Conley and Franklin S. Sampson.

The attendance at our meetings has increased more than fourfold during the past two years, and we are having splendid papers and discussions, which help us professionally, and the spirit of good fellowship and sociability prevails among all the members.

SCIENTIFIC SESSION.

Annual Address by retiring President, Herbert W. Matthews, M.D., Penn Yan.

"Fractures and Their Treatment," illustrated with views, William L. Wallace, M.D., and Carlton F. Potter, M.D., Syracuse.

CHENANGO COUNTY MEDICAL SOCIETY.

Annual Meeting, Norwich, N. Y., December 14, 1915.

The one hundred and eleventh annual meeting was called to order in the County Court House. The following officers were elected for 1916:

President, Alpha R. Morse, Oxford; Vice-President, Carl D. Meacham, Greene; Secretary, Paul B. Brooks, Norwich; Treasurer, James B. Drake, Norwich; Censor, Charles W. Chapin, Greene.

Alfred O. Persons, Nineveh, was accepted as a member on certificate of membership in good standing in Greene County Society; Blinn A. Buell, Guilford, on certificate from Broome County. An application and certificate of transfer from Dodge County, Wis., was received from Floyd D. Brooks, New Berlin. It was voted that the application be made in the usual form, as there was no provision in the by-laws for a transfer from one state to another. Application received from Harrison C. Allen, Oxford, was accepted. Upon payment of dues Harold J. McNitt and Clarence E. Falkner were accepted as members subject to the approval of the Board of Censors, as the applications had been received too late to be submitted before the meeting. Thurston G. Packer, Smyrna, was made an honorary member of the Society.

SCIENTIFIC SESSION.

President's Address.

"The Management of Acute Appendicitis by the Country Practitioner," Edward Danforth, M.D., Bainbridge.

"Some General Remarks on Modern Psychiatry," Blinn A. Buell, M.D., Guilford.

A stereopticon talk on "Smallpox and Vaccination" was to have been given by William B. May, M.D., Expert on Communicable Diseases of the State Health Department, but was prevented by heavy snow storm; the subject, however, was covered by an informal talk by Paul B. Brooks, M.D., District Sanitary Supervisor.

FULTON COUNTY MEDICAL SOCIETY.

Annual Meeting, Johnstown, N. Y., December 23, 1915.

The meeting was called to order at the Y. M. C. A. Building. There were present: Drs. E. F. Hagedorn, Lenz, Shaw, Somers, Ellithorpe, Still, Hogan, Walrad, Riggs, Hall, Finch, Wood, McKillip, Brown, Bledsoe, M. Kennedy, Beebe, Vedder, Neuendorf, Ehle, Murphy, Nolan, Clemans and Oaksford.

The minutes of the previous meeting were read.

Motion made, duly seconded and carried, that the minutes stand as read.

The following officers were elected for 1916: President, Edwin F. Hagedorn, Gloversville; Vice-President, Frank M. Neuendorf, Johnstown; Secretary, Homer H. Oaksford, Gloversville; Treasurer, John D. Vedder, Johnstown. Censors: Frank G. Calder, David V. Still and Burlin G. McKillip, Gloversville. Delegate to State Society: William C. Wood, Gloversville; Alternate, Edwin F. Hagedorn, Gloversville.

SCIENTIFIC SESSION.

"Kidney Functional Tests," J. Forrest Southwell, M.D., Albany. Discussed by W. C. Wood, M.D., George Lenz, M.D., and H. H. Oaksford, M.D.

Motion made, seconded and carried, that a vote of thanks be extended Dr. Southwell.

Motion made, seconded and carried, that the outgoing President, Dr. Clemans, be given a vote of praise for his work during the past year.

OTSEGO COUNTY MEDICAL SOCIETY.

Annual Meeting, Oneonta, N. Y., December 7, 1915.

The following were elected officers for the year 1916:

President, Harry L. Cruttenden, Cooperstown; Vice-President, Norman W. Getman, Oneonta; Secretary, David H. Mills, Oneonta; Treasurer, Frank L. Winsor, Laurens. Delegate to State Society: Bennett W. Dewar, Cooperstown. Alternate to State Society: John H. Moon, Cooperstown.

SCIENTIFIC SESSION.

President's Address.

"Diagnosis of Everyday Cases," Benjamin W. Stearn, M.D., Unadilla.

"Early Diagnosis of Ocular Troubles," Arthur H. Brownell, M.D., Oneonta.

"Gastric Ulcer—Its Diagnosis and Surgical Treatment," David H. Mills, M.D., Oneonta. Illustrated by Radiographs by Daniel Luce, M.D., Oneonta.

COUNTY OF ROCKLAND MEDICAL SOCIETY.

Annual Meeting, New City, N. Y., December 1, 1915.

There were present: Drs. Toms, Pitkin, Maynard, Senigaglia, Barlow, Hollander, Sansom, Miltimore, Sitler, Sullivan, Felter, Kline, Giles, Demarest, Veith, Barry, Sengstacken, Blauvelt, DeBaun, Kerr, Gibb, Lewis, Doig, Dingman, Sanford, Leitner and Crosby.

After the annual dinner, which was enjoyed by all present, the Society went into business session. Minutes of preceding meeting were read and approved. Dr. Toms made a few remarks as President.

The Treasurer's report was read and approved.

Balance from 1914	$74.10	
Receipts from dues	165.00	
		$239.10
Expenditures		224.65
		$14.45

The following officers were elected for the year 1916:

President, William R. Sitler, Suffern; Vice-President, Edith W. Pitkin, Congers; Secretary, George J. Veith, Suffern; Treasurer, Arthur K. Doig, Nyack. Censors: Eugene B. Laird, Stony Point; Gerrit F. Blauvelt, Nyack; Daniel J. Sheehan, Spring Valley; Ralph DeBaun, Congers.

Moved, seconded and unanimously carried, that resolutions of congratulation be offered to Dr. George A. Leitner for his work in the Tuberculosis Hospital campaign.

MEDICAL SOCIETY OF THE COUNTY OF MONROE.

ANNUAL MEETING, ROCHESTER.

December 21, 1915.

The following officers were elected for the ensuing year: President, Frederick W. Seymour; Vice-President, Myron B. Palmer; Secretary, Charles W. Hennington; Treasurer, Charles C. Sutter.

Censors: Eugene H. Howard, John F. W. Whitbeck, Albert C. Snell, Charles R. Witherspoon, Owen E. Jones.

Delegates to State Society: Two for term of two years, Charles W. Hennington and Charles C. Sutter.

Alternates: Myron B. Palmer and John M. Swan.

MEDICAL SOCIETY OF THE COUNTY OF ULSTER.

ANNUAL MEETING, KINGSTON, N. Y., DECEMBER 7, 1915.

The following officers were elected for the year 1916: President, Mark O'Meara, Kingston; Vice-President, Cornelius V. Hasbrouck, Rosendale; Secretary, Orlando D. B. Ingalls, Kingston; Treasurer, E. E. Norwood, Kingston. Censors: Alexander A. Stern, Kingston; Aden C. Gates, Kingston; Frederick Snyder, Kingston; George W. Ross, Port Ewen; Rufus Crawford, Saugerties. Delegate to the State Society: Henry Van Hoevenberg, Kingston. Alternate: Frank Keator, Kingston; Frederick Snyder, Kingston. Delegate to Third District Branch: Luther Emerick, Saugerties; Alternate: Aden C. Gates, Kingston.

SCIENTIFIC SESSION.

President's Annual Address, Luther Emerick, M.D., Saugerties.

General Discussion of "Organic Heart Disease," opened by Henry Van Hoevenberg, M.D., Kingston; Elbert H. Loughran, M.D., Kingston.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

HARVEY'S VIEWS ON THE USE OF THE CIRCULATION OF THE BLOOD. By JOHN G. CURTIS, M.D., LL.D., formerly Professor Physiology, Columbia University, New York. Based on a lecture delivered in 1907 before the Johns Hopkins Hospital Historical Club, Baltimore. Columbia University Press, 1915. Price, $1.50. Agents: Lemcke & Buechner, 32 West 27th Street, New York, and Humphrey Milford, Amen Corner, London.

THE TREATMENT OF ACUTE INFECTIOUS DISEASES. By FRANK SHERMAN MEARA, M.D., Ph.D., Professor Therapeutics Cornell University Med. Col., New York; Attending Physician Bellevue Hosp.; Associate Attending Physician St. Luke's Hosp., New York. Macmillan Co., New York, 1916. Price, $3.50. All rights reserved.

THE BELOVED PHYSICIAN, EDWARD LIVINGSTON TRUDEAU. By STEPHEN CHALMERS. With illustrations. Boston and New York, Houghton, Mifflin Co., 1916. Price, $1.00 net.

DISEASES OF THE THROAT, NOSE AND EAR. By WILLIAM H. KELSON, M.D., B.S., F.R.C.S. (Eng.), Surg. London Throat Hospital, Hon. Surg.-in-Charge Throat, Nose and Ear Dept., City Dispensary. Henry Frowde, Hodder & Stoughton, Oxford Univ. Press, Warwick Sq., E. C., and 35 West 32nd St., N. Y. City. 1915. Price, $3.00.

INSTINCT AND INTELLIGENCE. By N. C. MACNAMARA, F.R.C.S. London: Henry Frowde, Hodder & Stoughton, Oxford Univ. Press, Warwick Sq., E. C., and 35 West 32nd St., N. Y. City. 1915. Price, $2.00.

MEDICAL LECTURES AND APHORISMS. By SAMUEL GEE, M.D., F.R.C.P., Hon. Physician to H. R. H. the Prince of Wales and Consulting Physician St. Bartholomew's Hospital with recollections by J. Wickham Legg. London: Henry Frowde, Hodder & Stoughton, Oxford Univ. Press, Warwick Sq., E. C., and 35 West 32nd St., N. Y. City. 1915. Price, $2.00.

In Memoriam

DR. EDWARD LIVINGSTON TRUDEAU.

Over forty years ago a promising young physician of New York was stricken with tuberculosis at the very beginning of his career. With something of the same instinct the mortally wounded animal shows in seeking a hiding place, this doctor, a lover of the woods, sought the wilds of the Adirondacks for the rest and peace which the great forest gives. He would get a few months' hunting and fishing, perhaps—and then die! He did die there, finally, in the very heart of that region, but not until he had given many years' service to his fellow-sufferers and, as a scientist and humanitarian, had made a deep and lasting impression on his generation.

EDWARD LIVINGSTON TRUDEAU was born in New York in 1848, and was of French Huguenot descent, with a medical ancestry which, on his mother's side, extended back several generations. When still a very young child he was taken to France, where, at the home of his grandparents in Paris, he spent his boyhood and received his early education. Returning to New York, at the age of eighteen, it was some time before he felt at home in his native land, and several years before he formed any very serious purpose in life. At first he was attracted to service in the United States Navy, but before he could enter the Naval Academy, it was discovered that his only brother was ill with tuberculosis in an acute form, so he immediately abandoned his plans and devoted his entire time to caring for him, nursing him until his death a few months later. This was Dr. Trudeau's first contact with this disease, in a "perpetual epidemic" of which, as he used to say, he was to spend the rest of his life. This experience made a great impression on his mind and character, and developed in him a remarkable sympathy for all similarly afflicted.

After several ineffectual attempts to get into some useful occupation, he decided to study medicine, and in the fall of 1868 entered the College of Physicians and Surgeons. After finishing his medical course and completing a six months' hospital service, he accepted an offer of partnership with Dr. Fessenden Otis. Hardly had he begun work when it was discovered that he, too, was ill with tuberculosis. What a shock such a discovery was in those days can easily be imagined. But with his courageous young wife he faced what seemed the inevitable quite calmly. After a two months' trial of the South without improvement, he decided to spend a few months of his remaining days in the peaceful enjoyment of the Adirondack woods. He did not expect to be benefited in any way by the climate, but merely wanted to satisfy a longing for the depths of the wilderness.

It was a long and tiresome journey to Paul Smith's in those days, and the small hostelry was quite primitive in its appointments, though very comfortable withal. The constant open-air life soon showed its effects on the invalid and he lost his fever and began to eat and sleep well. Ignorant of the value of rest, he was nevertheless getting it, for he often spent the entire day in a boat fishing or being rowed about. At the end of the summer, feeling almost well again, he returned home, but a recurrence of the fever showed that he could not remain there. The following winter was spent in Minnesota, but without success, so early in the following June he returned to the Adirondacks, this time with his little family, to make his home there permanently.

At the end of the second summer, although he was no better, he decided to remain at Paul Smith's all winter, an experiment which proved to be beneficial. The next winter he removed to the little hamlet of Saranac Lake, where he ultimately made his home, and where tuberculosis invalids, in gradually increasing numbers, came to seek health, as the knowledge of the benefit to be obtained was spread abroad.

Year by year Dr. Trudeau improved in health and strength, and gradually resumed practice again. Finally he was able not only to meet the increasing demands made upon his services as a physician and specialist in tuberculosis, but to achieve the founding and guide the development of a sanatorium and laboratory, both of which remain as fitting memorials of a man who showed his faith by his works.

Dr. Trudeau's personal experience of and contact with, tuberculosis, naturally made him keenly interested in its study, and he eagerly sought every bit of information published on the subject. The idea of establishing a sanatorium was suggested by reading an account of Brehmer's Sanatorium in Silesia and Dettweiler's institution at Falkenstein. This, coupled with the fact that it was difficult for invalids of moderate means to obtain suitable accommodations in the Adirondacks, led him to make an attempt to provide a few small cottages where patients could be cared for at a little less than cost and the sanatorium method tried. By interesting some of his well-to-do patients at Paul Smith's in the project, he obtained the money necessary to start the enterprise, and the Adirondack Cottage Sanitarium was opened in the fall of 1884. The remarkable development and beneficent work of this institution, the first of its kind in this country, is a matter of familiar history.

Dr. Trudeau's interest and efforts in the scientific investigation of tuberculosis were coincident with the beginning of his humanitarian work at the sanatorium, and were inspired by the publication of Koch's noted work on the "Etiology of Tuberculosis." He had read in his medical journals one or two abstracts of this work, but made no attempt to procure a copy of the original paper, because he could not read German. But his friend, Mr. C. M. Lea, with whom he had discussed Koch's discovery, had an English translation of it made for him as a Christmas present. Thanks to his early education in France, the French language was familiar to him, and he was always able to read French medical literature, but German he never tried to master.

Bacteriology was a new science in those days, and Dr. Trudeau knew nothing about it. But he resolved to find out what he could, and on his next visit to New York, learned from Dr. T. Mitchell Prudden, who had worked in Koch's laboratory, how to stain and recognize the tubercle bacillus. With what little knowledge he was thus able to obtain, he returned to Saranac Lake and started a little laboratory of his own, equipping it with homemade apparatus by means of which he succeeded in cultivating the tubercle bacillus outside of the body. Elated by this success he immediately began experimenting to find some germicide which would destroy the bacillus in the tissues of guinea pigs. All attempts to do this failed, and he finally summed up his results in these words: "The tubercle bacillus bore cheerfully a degree of medication which proved fatal to its host."

Disappointing as the failure of these experiments was, Dr. Trudeau continued uninterruptedly the investigation of the tubercle bacillus with the limited facilities his little laboratory provided, and from time to time published the results of his investigations. As an example of the extremely practical character of these experiments, appealing to the lay mind by its simplicity and reasonableness, may be cited the so-called "Environment Experiment." Selecting fifteen rabbits he divided them into three lots of five each. Two lots were inoculated with the germs in exactly the same way. One of these lots was then given the run of a small island near his camp at Paul Smith's. They had all the fresh air and sunshine nature could give them, and an abundance of food was provided them. The other lot of these inoculated rabbits was given the worst environment possible, dark damp, crowded quarters, with bad air and insufficient food. The third lot, uninoculated, was also given bad quarters like those of the second lot. The results were striking, and showed that the rabbits in the favorable environment were, with one exception, well, and those in an unfavorable environment were dead in three months, while those in the third lot were emaciated and weak, but not diseased. The encouragement this gave Dr. Trudeau in carrying out the theory of the sanatorium treatment was great. The experiment was later repeated with the same result.

Work continued in this old laboratory until 1893, when an accident happened which interrupted it. One very cold winter's night, while Dr. Trudeau was very ill in New York, the lamp of the thermostat got out of order, set fire to the laboratory and, as a result, the entire house was destroyed. This event aroused much sympathy for Dr. Trudeau, and one of his friends, who was himself a patient, decided to build him a modern laboratory adequately equipped for the work he was doing. A handsome fireproof, stone and brick structure now stands as a result of the seeming calamity. Here the work has been continued by the assistants who have come to his help from the ranks of the tuberculous.

There have been many who have gone out from his sanatorium and laboratory with a true inspiration for useful service in the field of tuberculosis.

Dr. Trudeau's personality was most attractive and his presence magnetic. He immediately won a patient's confidence and co-operation by the hope and cheer which seemed to pervade the atmosphere about him. He made another's interest his own, and was ever ready to listen with close attention to matters presented to him; no one ever felt that he was indifferent to their appeal. In talking on the subject nearest his heart, the Sanitarium, he always showed animation and enthusiasm, and he was able to impart this enthusiasm to others.

He was most companionable, and was a friend to his patients, and enjoyed the friendship of rich and poor, those of high station and the lowly. He was very fond of friends, and quite dependent upon them for satisfactions of life, and always ready to warm both hands before the fire of their companionship. He had a full appreciation of men's desires and great sympathy for their needs, and this endeared him to all who came into close association with him. It was his intense desire to do somebody a favor, as an individual, or to help the sick and distressed always, that made his service so telling, his accomplishment so great. And it gave him great satisfaction in life to know that he had done this to some extent. He suffered much from migraine at intervals, and was of a highly nervous temperament. Besides he had to pass through much sorrow through the loss of a daughter from the same disease that crippled his own life, and a son just starting on a useful career in medicine. His wife, who has sustained him in many dark days, and a younger son, also a physician, remain to cherish the memory of a most affectionate husband and father.

DEATHS.

Charles G. Am Ende, M.D., New York City, died January 14, 1916.

Peter H. Ernst, M.D., New York City, died January 10, 1916.

LeRoy Dwight Farnham, M.D., Binghamton, died January 3, 1916.

David J. Hamburg, M.D., New York City, died January 21, 1916.

J. Lee Morrill, M.D., New York City, died January 16, 1916.

Achilles Rose, M.D., New York City, died January 10, 1916.

Elliott C. Smith, M.D., Corfu, died January 8, 1916.

NEW YORK STATE JOURNAL OF MEDICINE

A Journal Devoted to the Interests of the Medical Society of the State of New York

JOHN COWELL MAC EVITT, M.D., Editor
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The Medical Society of the State of New York is not responsible for views or statements, outside of its own authoritative actions, Published in the Journal.

Vol. XVI. MARCH, 1916 No. 3

EDITORIAL DEPARTMENT

THE PROPOSED STATE HEALTH INSURANCE LAW.

WE are in a revolutionary era of medical practice. The State through the Workmen's Compensation law has thrown its protecting arm around a certain class of its citizens and left unprotected others equally worthy, to fight their struggle for existence unaided.

Recognizing this injustice it now seeks to bring all wage earners up to a certain limit within its philanthropic beneficence. As an auxiliary in this effort we are a necessary factor.

Recognizing further that in the preparation of the Bill due consideration should be accorded to the profession in determining the methods to be adopted in carrying out the medical measures of the Bill all such measures were wisely left to the Commission to be appointed under the Act and not incorporated as hard and fast laws under the Act itself.

This will permit a certain elasticity in the rules and when the profession feels itself unjustly treated the rules can be changed without the formality of changing a rigid law; a safe and advantageous position for us to hold.

Therefore it is of paramount importance that every member of the State Medical Society should become conversant with the proposed enactment of a State Health Insurance Law, defined in a Bill introduced into the legislature, entitled An Act to establish a system of insurance to provide benefits for employees in case of sickness and accident, not covered by the Workmen's Compensation Act. The law is startling in character and provocative of radical changes in the practice of medicine in this State. The value of the basic principles of this new law is unqualifiedly good. Their successful application at the present time and under the present status of the personnel of the medical profession will demand the most careful consideration.

The Bill, printed in pamphlet form is copiously diffusive and we are inclined to believe that excepting members of the State Society who are directly interested in medical legislature, few will read it in its entirety. The complete bill is published in the February issue of the JOURNAL. It is admirably constructed, outlining in detail its scope and is interestingly educational. Its perusal will raise in your mind the questions of expediency, applicability and efficiency.

The scheme of its application is modeled on that now in operation in Germany and England. An abridged description of its principles, governmental regulations and results of experience are embodied in an article composed by the Publication Committee and also published in the February issue of the Journal which will in a few moments reading give you a comprehensive knowledge of its virtues and faults and assist you in determining how far reaching its adoption would affect the profession in this state.

It was our intention to comment somewhat exhaustively on the different phases of the Bill but now being in receipt of the Report of Dr. Kopetzky, Chairman of the Committee on Legislation of the Medical Society of the County of New York, which was adopted by the Society at its last meeting,* we will postpone our comments to some future date.

Dr. Kopetzky's report describes the most important provisions of the proposed new law and expresses the views of the Committee in an analysis of the measures proposed. While the Journal is not in accord with all the conclusions of the Committee it bears testimony to the careful consideration the committee gave to the matter.

The action of other county societies will culminate in some definite stand by the State Society at its coming annual meeting provided the act does not become a law before that time. What we have written will possess but little value unless it has impressed you with the importance of studying the proposed new Health Insurance Law.

A FATALITY FOLLOWING THE USE OF HORSE SERUM.

In the October number of the Journal appeared an editorial on "Horse Serum as a Hæmostatic." The following communication from Dr. T. H. Farrell, of Utica, we deem a most valuable addition to the subject and worthy of the prominence the Journal accords to it.

I can indorse all you have said as to the good results following its use in hæmorrhages from the nose and throat, to which my experience has been limited. In tonsil and adenoid operations, I had come to have a feeling of security against serious post-operative hæmorrhages in the positive control afforded by the subcutaneous injection of horse serum. In equal measure, the serious hæmorrhages from the nose, post-operative and spontaneous, yielded to its influence. In all my cases 10 c.c. administered once, had been sufficient.

If there was no other side to the picture, this remedy should be given wide publicity. You say "as far as we know, no fatal results have followed its use." *It is to record one such fatal result that I write this letter.* "On September 5, 1914, I operated E. B., age 19, a young man standing at the head of his class in one of the best technical colleges in this country. The operation consisted in the removal of portions of the middle and inferior turbinals which were obstructing his respiration. I had operated on his nose previously without any unpleasant sequelæ. This time he came to the hospital brimming over with animal life and good spirits, accompanied by his father.

"The operation was performed about 9 A. M. under cocaine anæsthesia. On visiting the hospital about 4 P. M., in order to operate another patient, I found his father very nervous because of a persistent oozing from the boy's nose and because of a most unnatural depression of spirits and lack of animation in conversing. More to relieve the father's mind than from the necessity of the case, I ordered the house surgeon to give 10 c.c. of a horse serum put out by a reputable house. Before the house surgeon could leave the room, the patient complained, in quick succession, of feeling hot, then of nausea, and then of difficulty in breathing. At the same time he began to tremble. The house surgeon hastened to tell me and I hurried to the room. By this time the boy was unconscious, the breathing labored, the pulse weak, the lips and tongue greatly swollen and livid. In spite of restoratives, including the pulmotor, he died in a very few minutes."

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* See page 157.

There have been other instances of anaphylaxis in varying degree in our community; but the rapidly fatal ending in this case was *appalling*. Any one who uses horse serum must be prepared for this eventuality.

"OUR ANNUAL MEETING."

THE One Hundred and Tenth Annual Meeting of the Medical Society of the State of New York will be held at Saratoga Springs, May 16th, 17th and 18th. In this issue of the STATE JOURNAL will be found the program of the Scientific Sessions.

This year's meeting at Saratoga Springs will follow closely the program of last year in Buffalo. The place of meeting is in itself a strong inducement for every member of the Society to arrange to be present. The part that the State has taken in the development of the Springs will be recognized and set forth at a public meeting in an address by the Governor of the State. The oration in medicine will be delivered by Dr. Richard P. Strong, Professor of Tropical Medicine at Harvard University, who will speak on the Lessons of the War from a Medical Standpoint, based on his work in Serbia.

It is manifestly impossible to mention all the good things which the various Section programs offer. A particularly important symposium has been arranged for Tuesday afternoon, consisting of seven papers on the "Medical Examination of School Children." On Wednesday afternoon there will be an equally valuable symposium on the subject of gout, with papers by Dr. Alsever, of Syracuse; Dr. W. Gilman Thompson, of New York; Dr. Stockton, of Buffalo; Dr. Williams, of Rochester, and Dr. Allen Jones, of Buffalo. Wednesday morning, in the Section on Obstetrics and Gynecology, there will be a paper by Dr. Richard R. Smith, of Grand Rapids, Mich., on "The Genital Reflexes and Their Role in the Production of Symptoms Arising in the Pelvis;" also, one by Dr. H. S. Crossen, of St. Louis, Mo., on "Gynecologic Surgery, in Hystero-Neurasthenic Patients." Wednesday morning, in the Section on Surgery, there will be a paper by Dr. Herman G. Matzinger, of Buffalo, on "Types of Cerebral Defects in Children that May Be Benefited by Operation," one by Dr. William Sharpe, of New York, on "The Results of Cranial Decompression for Selected Types of Cerebral Spastic Paralysis Due to Hemorrhage," and one by Dr. Edward W. Peterson, of New York, on "Intestinal Obstruction in Children with Special Reference to Intussusception."

The Section on Diseases of the Eye, Ear, Nose and Throat has arranged a symposium on Labyrinthine Disease for Tuesday afternoon, with papers by Dr. John B. Rae and Dr. Wendell C. Phillips, of New York; also a paper on the "Surgical Treatment of Laryngeal Cancer," by Dr. John E. MacKenty, of New York; and for the following day one by Dr. Lee M. Francis, of Buffalo, on "Serum Therapy in Ophthalmology," one by Dr. Otto Schirmer, of New York, on "Internal Secretions and Eye Disease," and one by Dr. Charles A. Elsberg, of New York, on "Inter-Cranial Surgery and its Relation to Ophthalmology," the latter paper to be discussed by Dr. Harvey Cushing, of Boston.

THOMAS J. HARRIS,
Chairman, Committee on Scientific Work.

THE BESTOWAL OF A DESERVED HONOR.

The physicians of Brooklyn, the home of Dr. Lewis Stephen Pilcher, who have for years lived beneath the shadow of his brilliant attainments and who have been drawn to him by the simplicity and charm of his personality have united to celebrate his fiftieth year in the practice of medicine. Arrangements for this celebration are not yet complete. The catholicity of the desire to honor Dr. Pilcher is shown by the names of the members of the Honorary Committee* who will contribute by their presence to make the occasion a memorable one in the history of Brooklyn medical life.

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* See page 156.

Original Articles

MILITARY GUNSHOT WOUNDS.*

By COLONEL CHARLES RICHARD,

Medical Corps, U. S. Army.

EVER since firearms have been used in warfare, wounds caused by their projectiles have constituted by far the greater number of battle injuries, while those inflicted by side-arms, such as sabers, bayonets, and lances, comprise but a small proportion of the casualties of war.

In the great wars following our Civil War, this latter class of wounds has constituted between 2 per cent and 3 per cent of the total wounds. In our Civil War this was but .37 per cent, and only a small proportion of these was received in battle, most of them having been inflicted by sentries in the discharge of their duties, or were received in personal brawls.

In the Franco-Prussian War they constituted but 1.4 per cent of the total wounds of the German forces, and but little more among the Russians in the Russo-Japanese War.

A new missile has recently been added to this class of implements of warfare, viz., the aeroplane arrow, which is launched in showers from air craft. It consists of a shaft of pressed steel, 10 c.m. long and 8 c.m. in diameter, bulky in its lower third, which ends in a sharp point. The upper two-thirds consist of four skeleton wings. It weighs 16 grammes, and when dropped from a considerable height attains sufficient energy to perforate the skull. It is doubtful whether it will ever become a factor of importance in warfare.

It may be safely said that in the wars of the present day injuries inflicted by this class of weapons will rarely reach 3 per cent of the total wounds.

Military gunshot wounds are divided into two general classes: those inflicted by small arms and those inflicted by artillery. Small arms fire, and this includes that of machine guns, has always furnished the greater proportion of battle wounds, from 70 per cent to 90 per cent. In the recent wars, the relative increase in strength of the artillery will show an increase in this ratio. The character of operations will also influence the ratio. In assaults on intrenched positions, and in cavalry charges, the ratio of bayonet and saber wounds will differ from those received in general engagements. Sieges, and attacks on fortified places, and trench operations such as are largely taking place in the war now raging in Europe, will furnish an increase in the artillery casualties.

Gunshot wounds are defined as injuries produced by projectiles which are set in motion by the sudden expansion of gases resulting from the explosion of powders; hence, injuries due to the explosion of grenades, bombs, or other explosive devices, are classed with gunshot wounds.

Modern military rifles possess certain features in common. They fire bullets of small caliber, between .25 and .32 of an inch, with a weight of from 150 grains to 220 grains; they are usually slightly more than an inch in length; the head is either ogival or pointed in shape. These bullets have an initial velocity of from 2,000 to 3,000 feet per second, and in their flight describe a flat trajectory. The bullet is usually made of a core of hardened lead incased in a jacket of hard metal (cupro-nickel or steel), though the French bullet, being made of 90 per cent copper with zinc and nickel alloy, has no jacket. Machine guns are of the same caliber as the rifle and use the rifle ammunition. They possess the same ballistic qualities, and wounds inflicted by them are identical in character with those inflicted by the rifle.

Modern artillery is always rifled; its projectiles consist of shells and shrapnel. The shell is a hollow case of forged steel, cylindro-conoidal in shape, carrying a bursting charge which is ignited either by a time or percussion fuse. When it bursts, it breaks into many fragments which are dispersed over varying areas, depending upon the range. Thus, the shell of the three-inch field gun of our service will break on explosion into approximately a thousand or more effective fragments, with an area of dispersion varying with the range.

Shrapnel consists of a steel case containing a varying number of bullets of hardened lead, held together by some such substance as rosin, and a bursting charge which is exploded in the same manner as the common shell. The modern shrapnel is designed to carry a number of bullets to a distance from the gun and to discharge them with an increased energy over an extended area. It is the principal field artillery projectile, and causes the greater number of wounds from this arm. The shrapnel of the three-inch field gun of our service contains 252 balls of hardened lead, of .49 inch caliber. It has an initial velocity of 1,700 foot seconds, and on bursting imparts an additional velocity of 300 foot seconds upon the balls, making a remaining velocity of 865 foot seconds at a range of 6,500 yards. From the "point of burst" of the shrapnel the bullets form a cone of dispersion covering a considerable area, dependent upon the distance of point of burst from the gun. In our service 80 per cent of the ammunition of field batteries consists of shrapnel, and 20 per cent of shells.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 28, 1915.

Hand grenades have come into considerable prominence as implements of destruction in recent wars. They are used only at close quarters, as in assaults upon intrenched or protected positions. The hand grenade is a container filled with an explosive, and is provided with a percussion fuse. Grenades upon exploding break into many fragments. Wounds from grenades are inflicted either by pieces of the casing, by the explosive action of the charges contained in the grenade, or by both. They are usually multiple, and may range in severity from a superficial burn to the shattering of a limb or other parts of the body. Injuries resulting from the explosion at short range of shells, torpedoes, mines, or bombs, are extremely terrible. Foreign bodies, such as earth, stones, splinters, and clothing, driven in, and burns from the flames of the gases, add to the severity of the injuries inflicted by their fragments. The explosive force of these death dealing devices may also produce fatal disturbances of the brain and cord, without the occurrence of external lesions.

The character of the wound inflicted by a projectile depends upon its size, shape and composition, and velocity at the time of impact, as well as the type of tissue injured. The greater the velocity of a projectile, the greater is its energy, and the amount of energy expended in overcoming the resistance of the tissues determines the amount of damage done to them.

The elongated jacketed bullet of the present-day military rifle in passing through the soft parts, in which it meets with but little resistance, cuts its way sharply, loses but little of its velocity, and consequently expends but little of its energy. In passing through the spongy bones, as the epiphyses of the long bones, the tarsus, and those of the face, it usually perforates with but little splintering, while upon the resistant diaphyses of the long bones its action, especially at short range, when its velocity is still high, is quite different. Thus, at a range of 500 yards and under, it splinters and comminutes the diaphyses of the long bones, and upon organs containing fluid or semi-fluid contents, it causes extensive disruption, the so-called explosive effect. Explosive effects are more common with the S, or pointed bullet, now almost universally adopted, the center of gravity of which lies so far behind the center of figure that it loses its stability upon meeting with resistance and upsets, or tumbles, with the result that it causes much greater laceration and destruction than the ogival bullet. Short range implies high velocity, and consequently explosive effects are, as a rule, only seen at short ranges. At the middle and distant ranges, if the bullet impinges directly and does not upset, these wounds exhibit but little destruction in the soft parts. The entrance in the skin is small (of the diameter of the bullet), and the exit but little larger, and the track through the tissue is straight and smooth, with but little contusion of the surrounding area. Such wounds usually heal by first intention. Because of this fact the modern rifle bullet has been spoken of as a humane bullet. When bone has been struck the exit wound is much larger in size, irregular in outline (due to fragments of bone, muscular and tendinous tissues carried forward, which act as secondary missiles and burst the skin outward), and bone dust and fragments of bone may be found lying loose in the lacerated tissues. Such wounds are usually accompanied by loss of more or less bone substance between the fractured ends. At the more distant ranges, bone comminution is less marked; the fragments are larger, and there is less loss of substance.

The dum-dum bullet gets its name from the town of Dum-Dum, in India, where it was first manufactured by the British. It was designed for use against the fanatical tribes because of its man-stopping power. The original dum-dum was a jacketed bullet, the leaden core of which was exposed by a small cylindrical cavity in its tip. When such a bullet strikes, the core is driven forward and spreads or mushrooms and frequently fragments; the jacket splits and separates from the core, causing an irregular lacerated wound; such wounds present every appearance of having been subjected to an explosion within the tissues. In wounds of the soft parts, the entrance is usually small and circular, of the diameter of the bullet, while the exit is a gaping laceration through which torn tissues protrude, and the skin surrounding is often split in parallel lines. When bone has been struck the destruction effected is much greater in degree; especially so is this the case when the diaphyses of the long bones are involved. A soft nose or deformable bullet that possesses the requisite velocity is capable of producing similar effects. Jacketed bullets that have richochetted, and by reason of that fact have become deformed and lose their ballistic qualities so that their rotation is irregular, will produce similar effects provided the remaining velocity is sufficiently great.

The name "dum-dum" is now applied to any bullet that deforms upon striking, such as a soft nose bullet or a jacketed bullet the envelope, of which has been tampered with. No doubt many of the accusations made in the present European War that dum-dum bullets are being used, are based upon wounds which have been inflicted by tumbling pointed bullets, or bullets which have been deformed by richochet. It must be added that the conversion by individual soldiers of their bullets into dum-dums can hardly be prevented.

Wounds inflicted by shrapnel bullets present different features from those inflicted by the jacketed rifle bullet; they approach in character those inflicted by the old leaden musket bullet of large caliber. The modern rifle bullet wound of the soft parts partakes more of the character of an incised wound, while that of the shrapnel bullet is essentially a contused wound. The wound track is of greater diameter, often fusiform in shape, and is surrounded by contused and devitalized tissues; the entrance and exit wounds are much larger than the entrances and exits of rifle wounds; lesions of the bones present less comminution. Owing to the lower velocity and greater caliber of the shrapnel bullet it frequently carries into the wounds shreds of clothing or equipment, and is very apt to lodge. It is estimated that in 40 per cent of the shrapnel wounds the bullet lodges. Suppuration almost invariably follows wounds by this missile. As trench fighting is now carried on to a greater extent than in former wars, shrapnel wounds of the skull occur much more frequently.

Wounds inflicted by shell fragments at close range cause some of the most serious injuries with which the military surgeon has to deal. The energy of the fragments, however, is soon lost at a short distance from the point of burst. The irregular shape and rough edges of the steel fragments when possessed of sufficient velocity, that is at close range, may cause frightful destruction of bones and soft parts; a large fragment may even tear off a limb, and smaller fragments may penetrate deeply, lacerating and contusing the structures lying in their paths. Pieces may lodge and multiple wounds are common. Shell wounds practically always suppurate, a condition favored not only by the foreign material so often driven into them, but also by the necrosis of the tissues involved.

The treatment of gunshot wounds on the battlefield must necessarily be of the simplest character, and under the usual conditions, must be limited in extent. The indications to be met are, the arrest of hemorrhage, the prevention of infection, and the preparation of the wounded soldier so as to permit of his safe transportation to the rear, which includes the counteraction of shock and the relief of pain. Severe primary arterial hemorrhage is usually so rapidly fatal that death occurs before surgical help can be rendered. In most instances hemorrhage is slight and ceases spontaneously; if not, it can generally be controlled by tourniquet or tampon until operative procedure can be safely undertaken farther to the rear. Rest to the wounded parts is of the greatest importance in preventing the spread of infection in all wounds, especially in those due to pyogenic organisms, hence fixation is an essential feature in their treatment. No exploration, no probing or digital examination of the wound is justified, and no operation except such as may be absolutely necessary to save life should be undertaken. In fact nothing more than the application of the first aid dressing, tourniquets, and splints when indicated, is feasible at the extreme front. All other treatment must be left to the lines of assistance farther to the rear.

All gunshot wounds must be looked upon as being infected. The rifle bullet, and the skin and clothing through which it passes, are never sterile, but in the simple wounds of the soft parts inflicted by this missile, the infection carried in is small, and the slight devitalization of the tissues surrounding its track enables them to overcome it. On the other hand, in wounds caused by shell and shrapnel, the amount of infection carried in is much greater, and the devitalization of the tissues so extensive, that multiplication of the infective organisms is greatly favored. In the first class of wounds sterilization of the skin, as by iodine, and the application of the first aid dressing are easily effected and fulfill the indications. Such wounds, if protected from further infection, usually heal promptly. In the other class of gunshot injuries, infection can rarely be arrested except by a thorough disinfection of the wound. The experiences gathered in the present European War have apparently demonstrated that in this class of wounds at least, our present methods are defective, and that antiseptic surgery rather than aseptic surgery should be employed in war.

It has recently been suggested that all such wounds should be treated as early as possible in accordance with the tenets of Lister. In his Hunterian lecture recently delivered, Sir W. Watson Cheyne suggests the introduction into the wound of a disinfectant paste containing carbolic acid or tricresol. This suggestion is based upon a series of experiments conducted by him, from which he concludes that volatile disinfectants have the power of penetrating tissues and of arresting or inhibiting the growth of micro-organisms. Some such measure, if employed early, would no doubt reduce infection, but the feasibility of its early employment with large numbers, as at the aid and dressing stations, is questionable. At the field hospitals such procedure is feasible, but ordinarily its application will be too late to be of avail. Practical experience in war will demonstrate its value. The surgical experiences of the European War may possibly evolve a method of treatment of battle wounds which will replace our present methods, which we realize are far from ideal, but until a simpler and better method of treatment of gunshot wounds at the extreme front is devised, one which can be applied by the soldier himself or his comrade, I fear we must continue to rest content with the use of the present first aid dressing.

Discussion.

Dr. George W. Crile, Cleveland, Ohio: I have been very much interested in this paper. Colonel Richard has covered the ground admirably.

I will give you briefly a summary of my own experience at the American Ambulance in Paris, of conversations with English and French surgeons, and of visits to hospitals in the English and French lines. First of all let me state regarding the American Ambulance that it is a splendidly managed hospital of over 400 beds, where Dr. DuBouchet, the surgeon in charge, Dr. Joseph A. Blake and the surgeons associated with them, are doing magnificent work.

As to the treatments of infections, Tuffier, Carrel and others stated that since the war of 1870 practically no progress has been made. As Colonel Richard has pointed out, our theoretical considerations of asepsis, when applied to conditions at the front, have broken down almost completely. What can be done under existing conditions? When soldiers are shot they must lie where they fall until evening. Sometimes aid cannot reach them for a day or two. Accordingly, as is testified by French and English surgeons, and by our own experience, practically every wound is infected. Tuffier informed me that if anyone could find an agent that would prevent or counteract infections 50,000 men could be put back into the French line. Carrel has brought his brilliant and acute mind to bear upon this problem, and, with Professor Jenkins, is trying to discover some chemical antiseptic which will kill existing infection.

Surgery of the head and brain is rather hopeless, as most soldiers who are hit in the head are either killed outright or die soon afterwards. The few that survive are apt to have abscesses and a train of nervous symptoms, paralysis, Jacksonian epilepsy, etc. Gunshot wounds of the head make a dismal story.

We saw a few cases of penetrating wounds below the skull and many wounds of the mouth and jaws. A high tribute should be paid to the American dentists, who are doing the best surgical work I have ever seen—replacing teeth, molding the jaw, treating fractures of the jaws and correcting deformities.

With regard to penetrating wounds of the neck, when they involve the large arteries and vessels, the soldiers die on the battlefield.

Perforating wounds of the chest do wonderfully well, if the bullets are not fired at close range. While the soldier realizes he has been struck, he merely spits up a little blood and soon goes back to the firing line. Within a few days he is apparently all right. Tuffier told me that a serous pleuritis followed these wounds, but as a rule soldiers recover rapidly.

Penetrating wounds of the abdomen are many and they are nearly always fatal. Tuffier told me of an organization for the purpose of sending to the front surgeons especially prepared to do abdominal work, in the hope that many lives might thus be saved; but it was found impracticable to operate on gunshot wounds of the abdomen. For instance, out of fifteen cases of penetrating wounds of the abdomen, in which operations were performed, all fifteen died.

I visited an English surgeon who was at the front in Belgium, near the firing line, and he said they were saving the lives of some of the soldiers who had received penetrating wounds of the abdomen. They use a little general anesthesia, most of the work, however, being done under local anesthesia. When the wounded soldiers are brought to the hospital they fill them up with subcutaneous injections of saline solution. They employ the technique of anoci association, *plus* large doses of opium, and are getting excellent results.

Through the kindness of the officer in charge, I visited a hospital where I happened to meet a young student from Newcastle whom I knew, and he showed me what they were doing. They had a complete organization for operating and were getting gratifying results. They use salt solution subcutaneously before operating, large preoperative doses of sodium bicarbonate and glucose per rectum, minimum general anesthesia, local anesthesia, the Fowler position, continue to give much saline solution and use hot packs and the Murphy drip.

Soldiers who have received penetrating or perforating injuries of the genito-urinary tract do not do very well. While they do not die immediately, they have urinary fistula, perforation of the bladder and rectum and every complication imaginable.

Passing to the extremities, we have the story of fractures. I will not enlarge on this subject, except to mention the amazing fact that practically all compound fractures that are infected—and this includes nearly all of them—are followed by union.

As Colonel Richard has already stated, where first aid is most needed it breaks down under the existing conditions at the front. Tuffier said that at one time, near one of the coast towns, where heavy and terrific fighting was going on, they had from 3,000 to 5,000 men to care for daily. He said all the surgeons and their assistants were overworked. The helpers were insufficient. You can readily understand that if you have 5,000 wounded men to care for, your resources will be taxed to the utmost. You could not take time to pass even a drink of water to these wounded soldiers. All they could do was to gather up the wounded as fast as they could, exhausted as they were from overwork, and pile them on the floor side by side. First, the trains carrying the troops bound for the front had the right of way; second, the trains carrying ammunition for the troops; third, the trains carrying food for the troops, and fourth, *and last,* the trains to bring back the wounded who were dying and those who were dead. In the early days of the war they could not get water for the soldiers, and at the sidings some of them died. This is an example of what is going on today at the front.

I wish to say in conclusion just one more thing. In this land of plenty, of peace, quiet and happines, let us not forget the Belgian physicians. They are in a bad way, and we ought to feel on the ground of common humanity, as well as on the ground of professional brotherhood, that they ought to be helped, and that we as a profession should do all we can to aid these physicians as well as the Belgian people. As a profession, our thought, our sympathy, our special duty should go out to the Belgian physicians.

Colonel Charles Richard, Washington, D. C. (closing): Dr. Crile has so clearly explained the conditions as they exist at the front, that anything I may say would fall flat. I believe few of us realize what these conditions really are. We formulate certain principles which we think can be applied, but when one realizes what the conditions are, as Dr. Crile has described them, one recognizes the fact that it is impossible to accomplish anything in the way of prevention of infection.

Dr. Crile has expressed the situation so well, that it is unnecessary for me to add anything further to what he has already said.

THE TREATMENT OF SCARLET FEVER WITH FRESH BLOOD FROM CONVALESCENT PATIENTS.*

By ABRAHAM ZINGHER, M.D.,

(From the Research Laboratory and the Willard Parker Hospital, Department of Health, New York City.)

THE treatment of the toxic forms of scarlet fever with convalescent serum was first attempted in 1896 by Weissbecker, who used small quantities of the serum in several cases without very definite results. Much better results were obtained in 1912 by Reiss and Jungmann, who recommended the intravenous injection of 40-100 c.c. of convalescent serum taken about the third week of convalescence. More recently Koch has again drawn attention to the therapeutic value of the antibody content of convalescent serum, and his results in 22 cases were quite favorable. These authors showed that a definite critical drop in temperature follows the intravenous injection of the serum in the uncomplicated toxic cases, treated in the early stages of disease. No effect, however, was noted on the septic complications, as for instance on the streptococcus exudate in the throat, or on joint, middle ear or gland infections. In a few of the cases the intravenous injection, especially of old serum, gave rise to chills and symptoms of collapse.

Since large quantities of serum are necessary, and the separation of the serum necessitates the wasting of more than 60 per cent of the convalescent blood, I have employed fresh whole blood taken from the convalescent donor and injected into the patient's muscles. This method for the intramuscular injection of whole blood represents a convenient way of giving a patient human serum and was originally described by me in the Archives of Pediatrics for December, 1914. The blood obtained from the donor may either be injected directly, or it may be previously citrated by adding an ounce of blood to 1 c.c. of a 10 per cent solution of sodium citrate making the final dilution of the citrate 0.33 per cent.

The following muscles of the patient are chosen and a syringeful of blood is injected into each place: the gluteal regions, the outer regions of the thighs, the calves, and the triceps muscles. Four ounces of blood can easily be injected into a young child, and eight ounces into an older child or an adult.

To obtain the blood I use a one ounce Record syringe and a platinum needle, No. 18 gauge. An ounce of blood is aspirated from the median cephalic vein of the donor; the syringe is then detached from the needle and its contents rapidly injected into the muscle of the patient. To keep the needle in the donor's vein free of blood an assistant attaches a smaller syringe containing some saline or a one per cent solution of sodium citrate. The procedure is repeated until the required amount of blood is aspirated and injected. We can thus obtain in less than ten minutes from four to eight ounces of blood. It may be necessary to rinse out the large syringe once or twice in a one per cent solution of sodium citrate which is kept ready in a beaker.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 27, 1915.

The absorption of the blood-mass from the muscles takes place rapidly, and, as a rule, without any further local irritation. At the end of twenty-four hours the muscles will be found to have regained their former size and consistence. If the blood is injected subcutaneously, discoloration of the skin and some induration will be noted for a few days after the injection.

Meltzer and Auer have shown that the absorption of crystalloids, like cocaine and morphine, from muscles takes place very rapidly, and the effect is very similar to that of an intravenous injection. Morgenroth and Levy have proven the same increased absorption for colloids by using antitoxic serum, which, during the first three-six hours, is absorbed five-ten times faster from the muscles than from the subcutaneous tissues. This increased absorption is attributed to the richness of muscles in blood vessels and to the increased pressure within the muscle.

Animal experiments which we carried out by injecting homologous blood into the muscle and subcutaneous tissues of rabbits and guinea-pigs have also shown a greatly increased absorption from the muscle as compared with that from the subcutaneous tissues.

The injected blood, whether fresh or citrated, clots in the muscle and no immediate increase in hemoglobin and red blood cells is noted; the fresh serum, however, with all its valuable antibacterial, antitoxic and ferment properties is rapidly absorbed.

We injected fourteen cases of toxic scarlet fever during the past winter. These cases were selected on account of the severity of the symptoms out of a total of 650 admissions. The majority of the patients were very toxic, and often delirious. The prognosis as a rule seemed doubtful and in several cases absolutely poor. The blood was obtained from donors who were convalescent from two to six weeks. The amount injected varied from 75 c.c. to 250 c.c., depending to some extent upon the age of the patient. In seven of the cases the blood was citrated. One-half of the patients received blood from one donor, the other half from two or more donors. The blood-mass was absorbed without any local irritation except in one patient, who showed for a few days a painful tender swelling of one calf and the opposite gluteal region. It was not, however, due to infection and the local symptoms soon subsided.

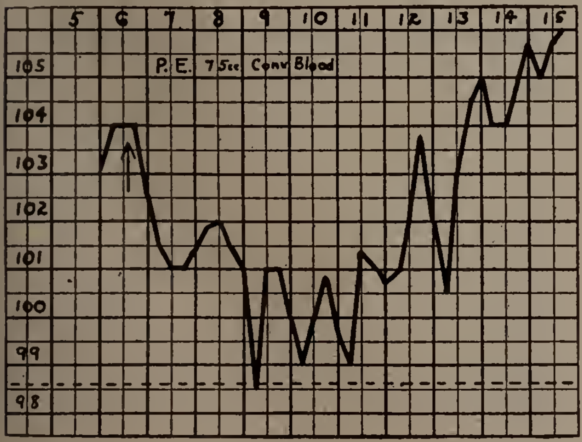

CHART 1.

Of the 14 patients injected, four died: (*a*) P. E., (Chart 1.), the first one, a child three years of age admitted on the fifth day of disease, was injected with 75 c.c. of convalescent blood on the same day. The general symptoms improved temporarily although the gangrenous lesion of the tonsils and pharynx continued. The child died nine days later of streptococcus sepsis.

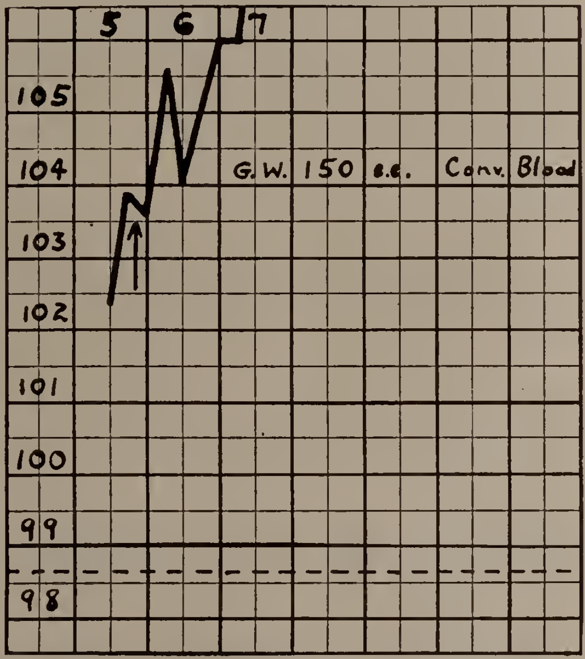

CHART 2.

(*b*) G. W. (Chart 2.), the second case, a baby 20 months old, came in practically moribund on the fifth day of the disease. There was marked meningismus with a severe streptococcus exudate and a profuse discharge from both ears. Fluid from lumbar puncture negative. One hundred and fifty c.c. of convalescent blood was injected, but the child died 36 hours later, no improvement having been noted either in temperature or general symptoms.

(*c*) A. A. (Chart 3.), the third case, was that of a child three and a half years of age, admitted on the second day of the disease. She was very toxic. The injection of 90 c.c. of convalescent blood caused a temporary drop in temperature of three and one-half degrees. The child developed a very extensive gangrenous condition of both tonsils and died two days after the injection of a rapidly progressing septic broncho-pneumonia.

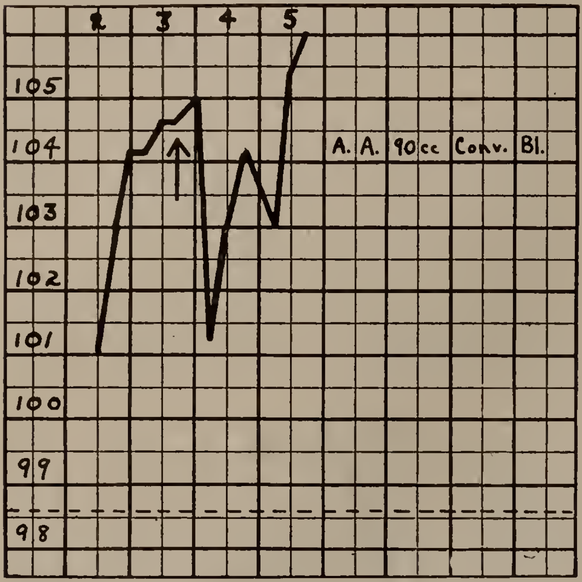

Chart 3.

(*d*) O. V. (Chart 4.), the fourth case was that of a man 25 years of age, admitted on the third day of the disease. He was extremely toxic and delirious. Twenty-four hours after admission 240 c.c. of convalescent blood was injected intravenously. He was practically moribund at the time the blood was injected; but it is interesting to note that even in this patient a very decided effect was noted on the temperature which dropped from 103° F. to 98.8° F. He died 12 hours after the injection.

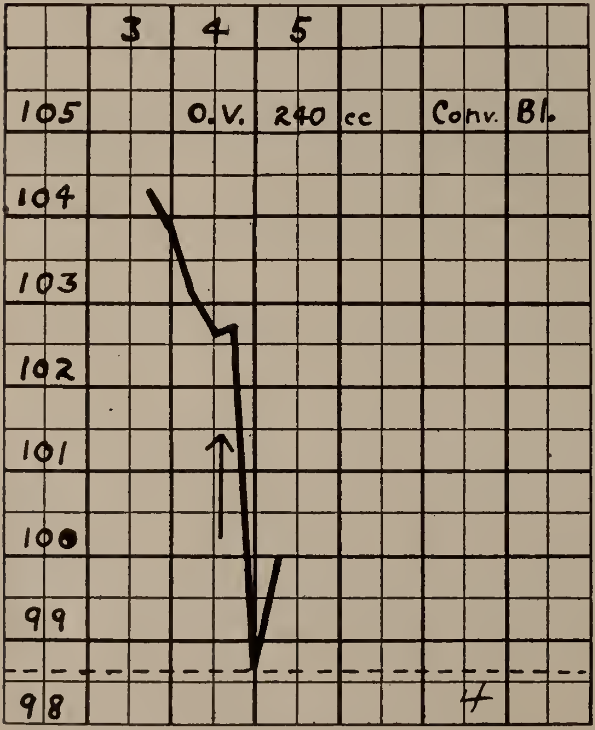

Chart 4.

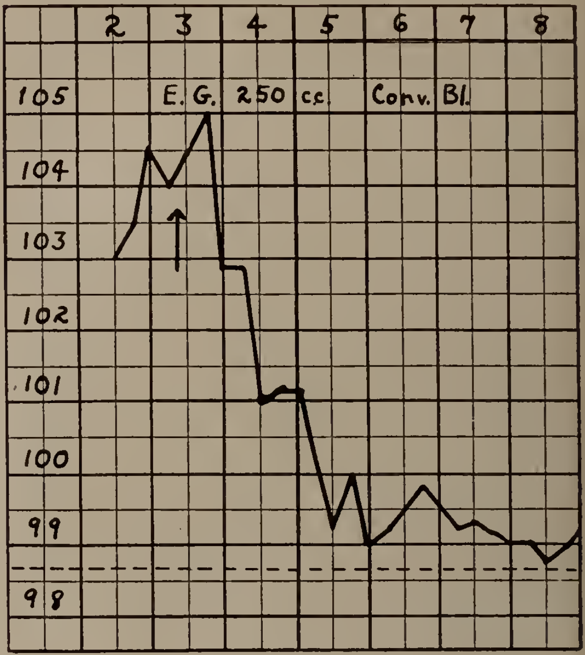

Chart 5.

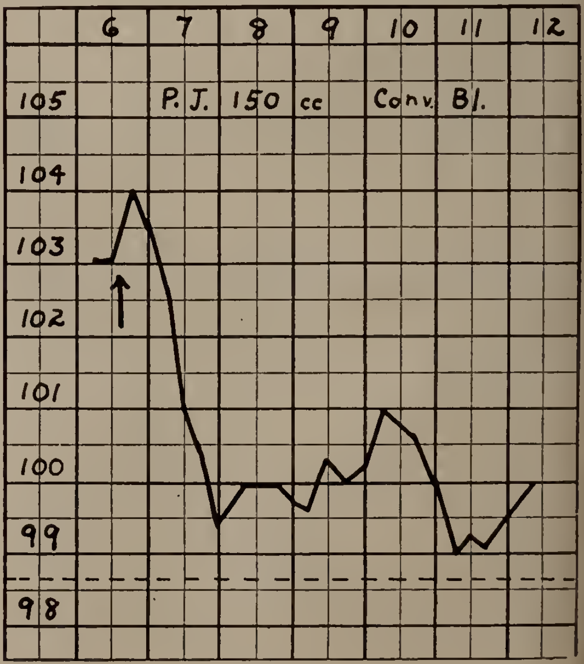

Chart 6.

In the remaining 10 patients there appeared to be a distinctly favorable influence upon the course of the disease.

(1) E. G. (Chart 5.), the first case, a man 19 years of age, admitted on the second and injected on the third day of the disease. Very toxic and delirious. Two hundred and fifty c.c. of blood caused a critical drop in temperature from 105° F. to 99° F., associated with a clearing up of the delirium and a distinct improvement in the character of the pulse.

(2) P. J. (Chart 6.), the second case, a boy six and a half years of age, admitted on the sixth day of illness. Intense rash, very restless, toxic and delirious. The injection of 150 c.c. of convalescent blood caused a critical fall in temperature from 104° F. to 99° F. during the next 24 hours. The mental symptoms cleared up rapidly and the rash faded in a short time.

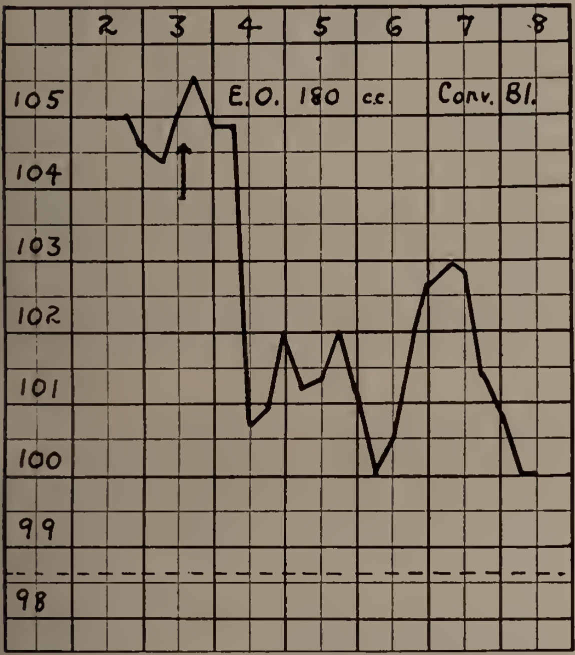

Chart 7.

(3) E. O. (Chart 7.), the third case, a girl ten years of age, admitted on the second day of the disease, and injected on the third day with 180 c.c. of convalescent blood. Here also was noted a critical drop in temperature from 105° F. to 100.5° F. in less than 18 hours, which was associated with a marked improvement in the general condition and especially the delirium. A streptococcus exudate, present on admission, continued for a few days and gave rise to some future temperature excursions. The patient made an uneventful recovery.

(4) H. R. (Chart 8.), the fourth case, a boy six years of age, admitted on the second day of the disease. A marked cervical adenitis developed during the next 48 hours. The patient was toxic and cyanosed. Injected on the fourth day of disease with 125 c.c. of convalescent blood. Moderate critical drop in temperature (4 degrees F.) general improvement, especially in the circulation and pulse. Temperature continued for a few days from the inflamed cervical gland, but convalescence was rapid and otherwise uneventful.

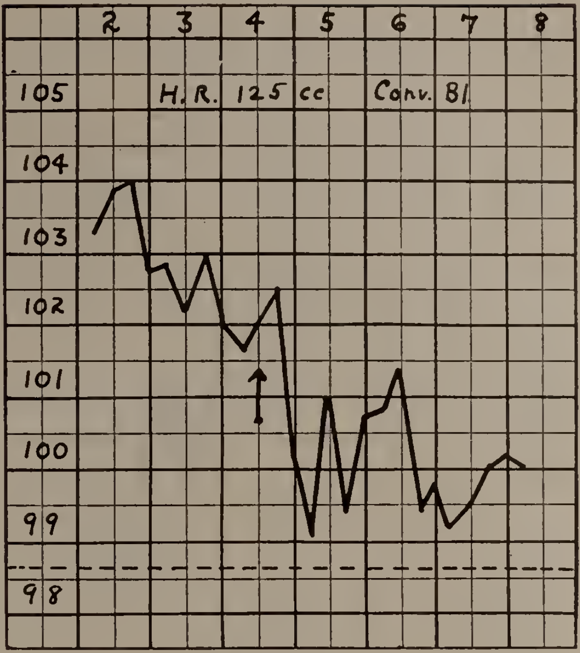

Chart 8.

(5) M. M. (Chart 9.), the fifth patient, a baby one year old, admitted on the fifth day of illness, very prostrated and toxic. The injection of 80 c.c. of convalescent blood caused a critical drop

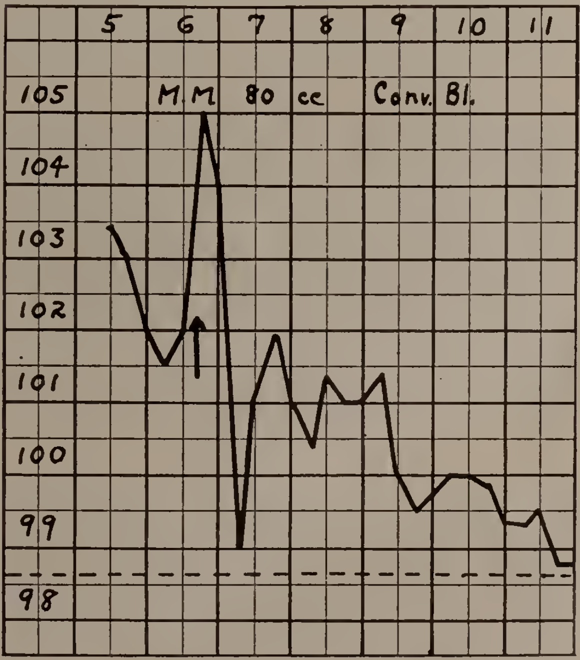

Chart 9.

from 105° F. to 99° F. with a distinct improvement in the general symptoms. The temperature continued during the next few days on account of a suppurating posterior cervical adenitis.

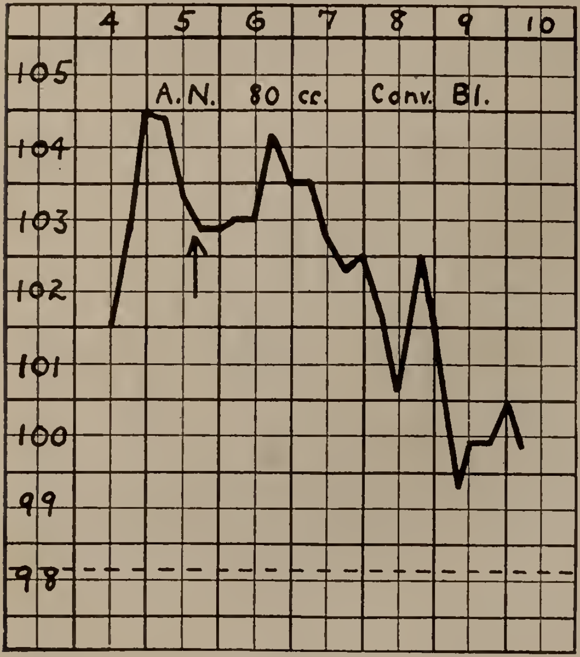

Chart 10.

(6) A. N. (Chart 10.), the sixth case, a child four years of age, admitted on the fourth day of the disease, very toxic, with a septic exudate in the throat. Injected next day with 80 c.c. of convalescent blood. No effect noted on temperature. Streptococcus exudate more marked on following day. General condition improved, however, and temperature came down during the next few days by lysis.

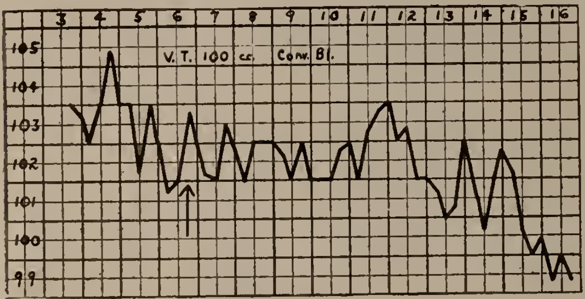

Chart 11.

(7) V. T. (Chart 11.), a child two years of age, admitted on the third day of the disease. Toxic, streptococcus exudate. Injected on sixth day with 100 c.c. of convalescent blood. Temperature remittant as before injection, from septic exudate and inflamed cervical glands. Improvement, however, in the general symptoms and gradual convalescence.

(8) E. N. (Chart 12.), a girl 11 years of age, admitted on the fourth day of the disease, very toxic, intense rash, markedly delirious. 210 c.c. of convalescent blood injected next day. Critical drop from 104° F. to 100° F. Delirium continued for 24 hours after injection. Streptococcus exudate caused a subsequent rise in temperature on the fourth day after the injection. Recovery.

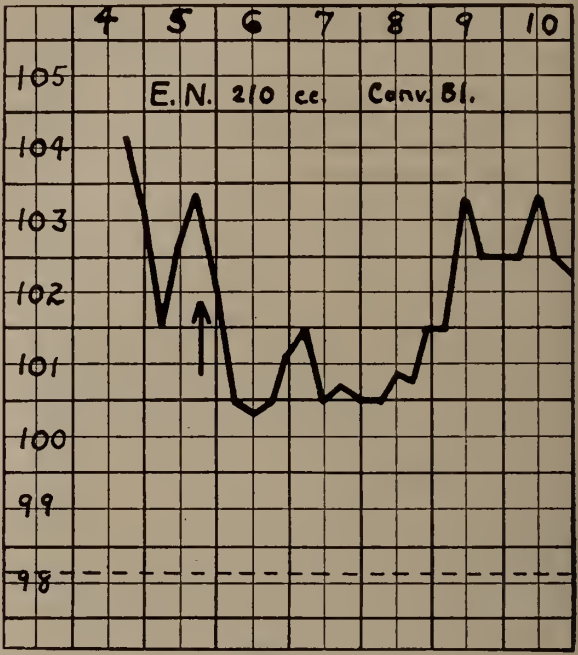

Chart 12.

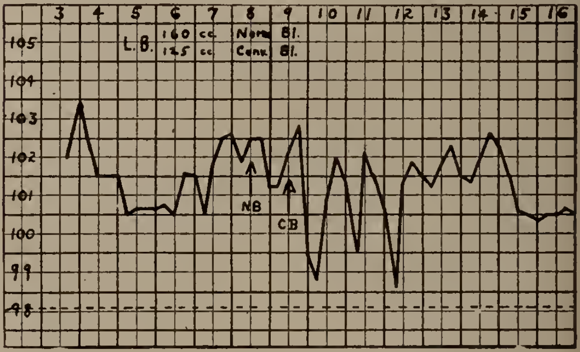

Chart 13.

(9) L. B. (Chart 13.), a child three and a half years old, admitted on the third day of the disease. Severe streptococcus exudate developed during the next few days. General condition became extremely poor. Injected on the eighth day of the disease with 160 c.c. of blood from father. Very little effect on temperature. Injected the following day with 125 c.c. of convalescent blood, which resulted in a drop in

temperature of four and a half degrees. Temperature continued remittant during the following six days on account of a severe orbital cellulitis, caused by a haemolyzing streptococcus. Condition improved after that, and the patient made a gradual convalescence.

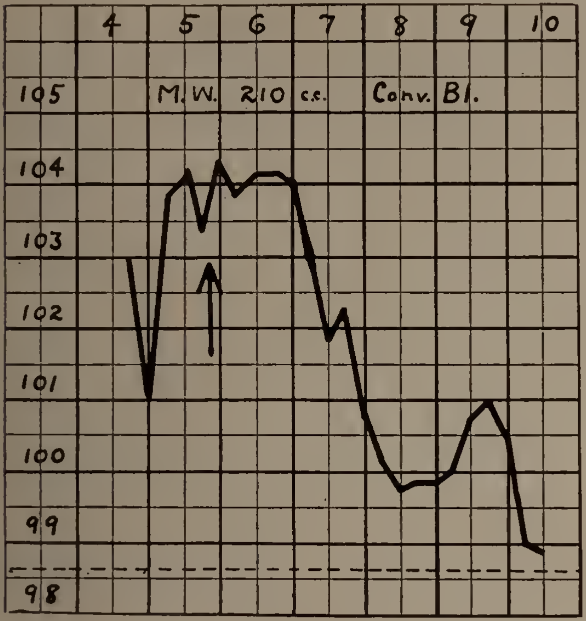

CHART 14.

(10) W. M. (Chart 14.), a boy 11 years old admitted on third day of disease. Toxic, intense rash. 210 c.c. convalescent blood injected, followed by a rapid drop in temperature and speedy recovery.

To summarize, we note a distinct critical drop in temperature in cases not complicated by a streptococcus exudate, or inflamed cervical glands. An improvement in the general condition, however, is seen even in the later septic forms of the disease, although the local phenomena are not influenced to any extent. It seems, therefore, that in the later septic cases, where the toxic element has disappeared from the clinical aspect of the case, these medium quantities of convalescent blood have no more specific action. We can, however, by using larger quantities of fresh normal blood, which may be more readily obtained from the relatives of the patients, exert a distinct beneficial effect on the disease, especially by injecting from eight to ten ounces of blood, and repeating if necessary in four to five days. These larger quantities of fresh blood, containing a considerable amount of natural antibodies, have been found to exert a distinctly beneficial effect in several very septic late cases of scarlet fever admitted during the past winter.

It is very difficult to make absolute statements as to the value of any therapeutic procedure in a disease like scarlet fever, in which the etiological agent is unknown, and where the clinical course of the disease often shows sudden changes for better or worse. For these reasons a proper reserve must be maintained in judging the efficiency of convalescent blood. Some of the cases here presented, however, show a very definite relationship between the injection of the blood and the critical drop in temperature, with an improvement in the circulation and general condition, and especially in the mental symptoms of the patient. Sudden drops in temperature and rapid general improvement are not unknown in untreated scarlet fever, but the regularity with which such improvement takes place in the cases injected is the significant feature.

The effect, therefore, of convalescent blood or serum in suitable cases of scarlet fever may be summarized with regard to the following symptoms:

I. Temperature—the decline begins within 2 to 4 hours after the injection and reaches its lowest point in 9 to 14 hours. Occasionally we see a slight elevation in temperature immediately after the injection; but this is only of a transitory nature. If secondary septic symptoms are present, the temperature will rise again, and often persist for a few days.

II. Pulse—becomes stronger, steadier and slower, as compared with the usual rapid, soft pulse of toxic scarlet fever.

III. Cardiac symptoms and the cyanosis improve.

IV. Respiration becomes more normal.

V. General condition improves perceptibly; a normal mental condition replaces the delirium and apathy. Subjective symptoms disappear.

VI. Rash fades rapidly.

VII. No influence, however, is directly apparent upon the secondary septic complication, like glands, joints, ear infections and exudate in the throat. Indirectly, however, we notice an improvement even in these manifestations of the disease. A similar result can be obtained, however, with fresh normal blood, and I have treated four cases, selected as representing some of the worst septic cases of scarlet fever, with a doubtful prognosis, who responded well to the injection of 8-24 ounces of fresh normal blood, taken from either one or both of the parents.

In conclusion it seems to me from a study of the cases presented here today that, if any benefit is to be derived from convalescent blood, its action must be brought into play early, before the patient is overcome with the toxemia. The question of donors is an important one. In a contagious disease hospital such donors are generally available. A record can be kept of their names and addresses, and when required, donors can be sent to the houses of private patients, where they will be willing to furnish the requisite amount of blood for a suitable consideration. Convalescent serum or citrated blood will have to be depended on, if a supply is to be kept on hand for emergencies. It is to be remembered, however, that the blood loses a good part of its therapeutic value on keeping.

Therapeutic work of this character will have to be continued for a much longer time and on a larger series of cases before definite conclusions as to its value can be made. Any help, however, that will enable us to combat the severely toxic forms of scarlet fever will be welcomed, until the definite etiology of the disease will be known and possibly, a specific antitoxic serum will have been placed in our hands.

The intramuscular method of injecting blood, either fresh or citrated, will be found of value in other infectious diseases like erysipelas, pneumonia, etc. I injected seven ounces of blood from a seven-day convalescent erysipelas patient into a child who was under the professional care of Dr. Joseph Roby. The striking effect on the temperature, on the local lesion and on the general condition of the patient is encouraging evidence of the value of convalescent blood in severe cases of erysipelas.

In cases of hemorrhage, as for instance, following tonsillectomy, in hemophilia and purpura, in jaundice, etc., the great value of fresh normal serum has long been recognized, and the simplicity of the intramuscular injection of fresh whole blood will make the treatment available in such cases at any time.

Discussion.

Dr. Charles Herrman, New York City: The treatment of scarlet fever with convalescent blood is based on the fact that a person who has had an attack of the disease is usually immune. The blood in all probability contains antibodies against the disease. However, it does not necessarily follow that blood which contains sufficient antibodies to protect against future attacks, will also have a specific effect upon the disease when it is already present. First, there is the quantitative difference; the body of a person convalescent from scarlet fever who is *immune,* contains from 15 to 20 times the amount of blood which we inject into the patient with scarlet fever. This might not be of such great importance. We know that sera which have a specific effect are produced in diseases caused by a bacillus which develops a toxin. We do not even know whether scarlet fever is caused by a microorganism. There is no doubt that the convalescent blood has a distinct and apparently favorable effect on the temperature. The charts published by Reiss and Jungman, by Koch and those demonstrated by Dr. Zingher show this; the general condition also appears to be improved; but these authors admit that complications are not prevented and when they occur there is a new rise of temperature. They agree that the difference between the action of convalescent serum and normal blood serum, is merely a quantitative one; that is that it is not specific. In view of the fact that the complications are usually due to secondary infection with streptococci, it would seem logical to combine the convalescent blood with Moser's serum. It appears to me that we shall not be able to obtain a definite idea of the value of this method of treatment until the disease can be successfully transmitted to animals. A few investigators have already met with some success in this direction. If not of great curative value it may still be an aid in prophylaxis.

Dr. George W. Goler, Rochester: We are indebted to Dr. Zingher for a report on the plan of treating severe toxic cases of scarlet fever with blood serum of recovered cases of scarlet fever. A female, aged five, entered the municipal hospital with a toxic scarlatina; temperature 104.5; pulse 180 or more, and a stuporous delirium. The fifth day of the disease, at 4 P. M., the child was given a subcutaneous injection of 7 c.c of serum from an adult woman who had recovered from scarlet fever. Sixteen hours later the child's temperature was 102.5, pulse 140, delirium disappeared and she endeavored to sit up in bed and play with a doll.

THE SCHICK REACTION AND ITS APPLICATIONS.*

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THIS paper is based on work which has been done in collaboration with Dr. Wm. H. Park, of which individual portions have been published as the work has progressed.

The definite association between the presence of antitoxin in the blood and immunity to diphtheria has been firmly established on the one hand by the efficiency of passive immunizing doses of antitoxin in protecting individuals against diphtheria, and on the other hand by finding a complete absence of antitoxin in those who develop clinical diphtheria.

The presence of natural immunity in a large number of people is a well established clinical fact—this immunity is definitely associated with the presence of natural antitoxin, as shown by finding it in measurable quantities in the blood of such immune individuals. The determination of the presence of antitoxin by the older methods is difficult and expensive and requires the use of guinea pigs. Schick has recently published a simple clinical test by which we can easily determine the presence of antitoxic immunity.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 27, 1915.

This test depends on the local irritant action of minute quantities of diphtheria toxin when injected intracutaneously. If antitoxin is absent, or if present only in such small amounts, as to be insufficient for protection, a positive reaction will appear in twenty-four to forty-eight hours. This reaction is characterized by a circumscribed area of redness and slight infiltration which measures from 1.0—2.5 cm. in diameter. It persists for seven to ten days, and on fading shows superficial scaling and a persistent brownish pigmentation. The amount of toxin injected, as advised by Schick, is 1/50 MLD. for the guinea pig in .1 c.c. of normal saline. We prefer 1/50 MLD. in .2 c.c., on account of fairly severe local reactions seen occasionally with the greater concentration of the toxin in those individuals who have not even a trace of antitoxin. The injection is quite painless, except for a slight temporary burning sensation.

It is important to distinguish the true reaction from a pseudo-reaction which is found in a small percentage of older children, but in a larger percentage of adults, who may or may not have antitoxin. These reactions are probably local sensitization phenomena of a protein character, since similar reactions can be obtained with toxin heated to 75° C. for five minutes or with dilutions of the autolyzed substance of the diphtheria bacillus, in which no toxin is present. The pseudo-reaction can be distinguished clinically in most cases from the true reaction. It appears earlier, is more infiltrated, less sharply circumscribed owing to a secondary areola around it and disappears in twenty-four to forty-eight hours. It leaves only a faintly pigmented area, which, in our experience, never shows superficial scaling. Occasionally we see a combined reaction which represents both a true and a false reaction. In such cases we should obtain the evidence of a positive reaction after the pseudo-reaction disappears.

For the carrying out of the test it is essential to have an accurate syringe with a sharp but short-pointed, fine needle. The usual 1 c.c. "Record" tuberculin syringe with a fine platinum-iridium needle answers the purpose well. A standard diphtheria toxin is diluted at first 1.10 in 0.5 per cent phenol; this dilution will keep in the ice box with little deterioration for at least two weeks. For use, further fresh dilutions are made in normal saline of such strength that .2 c.c. contain 1/50 MLD. for the guinea pig. This amount is injected intracutaneously on the flexor surface of the arm or forearm. If the injection has been made properly a definite circumscribed whitish elevation, similar to a wheal, will appear, which persists for several minutes. The size of the wheal can be used to gauge the amount of diluted toxin injected. The persistent pigmentation may make the forearm objectionable; in such cases the surface of the arm may be chosen.

An outfit for the Schick test has been devised by me and can be obtained in New York City from the Bureau of Laboratories. It consists of a capillary tube that contains a little over one MLD. of the undiluted diphtheria toxin, a small rubber bulb similar to those used in vaccine outfits, for expelling the toxin and a 10 c.c. bottle of sterile salt solution.

After diluting the toxin with the saline, a solution is obtained of which 0.2 c.c. represents 1/50 MLD. of toxin, the amount used in the test.

Though the intensity of the reaction varies in different individuals, a well-marked redness indicates an almost complete absence of antitoxin. Faint reactions point to the presence of very small amounts of antitoxin, which are not sufficient, however, to certainly protect the individual against diphtheria. To prevent the appearance of the reaction, according to Schick, at least 1/30 unit of antitoxin per c.c. of blood is required. This amount he considers sufficient to protect against diphtheria. According to v. Behring, even as little as 1/100 unit of antitoxin will protect against the disease in uncomplicated cases.

The Schick reaction was carried out during the past eighteen months on all patients entering the scarlet fever pavilion of the Willard Parker Hospital. In all, 1,200 patients were thus tested, and of these, 656 or 54.7 per cent, gave negative reactions. Only cases giving positive reactions were immunized; those giving a negative reaction received no immunization, but were carefully observed. Although more than 15 per cent of the negatively reacting patients became bacillus carriers during their stay in the wards, no cases of clinical diphtheria developed among them.

The remaining 544 patients who gave positive reactions received in practically all cases some form of active immunization. Among those who reacted insufficiently to active immunization with toxin-antitoxin mixtures or vaccines made from the Klebs-Lœffler bacillus, 72 developed clinical diphtheria. The majority of the cases were of a mild type.

According to age the number of reactions obtained were as follows:

SCHICK REACTIONS AMONG SCARLET FEVER PATIENTS.

Age	Total	—Schick	+Schick	%+Schick
6 mos.— 1 yr.	10	5	5	50.0
1— 2 yrs.	68	22	46	67.6
2— 4 "	223	93	180	65.9
4— 6 "	249	116	133	53.4
6— 8 "	196	123	73	37.2
8—15 "	237	171	66	27.8
Over 15 "	167	126	41	24.5
	1,200	656	544	45.3

Schick's Results.

Age	Total	—Schick	+Schick	%+Echick
Newborn	291	275	16	7.
1st year	42	24	18	43.
2 to 5 years	150	55	95	63.
5 to 15 years	264	133	131	50.
	747	487	140	34.9

The percentage of individuals who are susceptible to diphtheria is greatest, therefore, between the ages of one to four years. It is less during the second six months of life and less in older children and in adults. These results in scarlet fever cases closely approach those obtained by Schick, whose table shows positive reactions in 7 per cent of the newborn, in 43 per cent between two and five years, and 50 per cent between five and fifteen years of age. In adults the positive reactions were not more than 10 per cent. In normal children we only obtained from 32 to 17 per cent of positive reactions in children varying in age from two to sixteen years.

In an interesting study of the relationship of the antitoxin content of the mother's blood to that of the newborn, v. Gröer and Kassowitz found that 84 per cent of the mothers and their newborn show a considerable amount of natural antitoxin. The antitoxin of the infant is evidently derived from the mother through the placents and because of its frequency it is regarded as a physiological phenomenon. The mothers showed a local reaction to the broth containing diphtheria toxin in 47.5 per cent of cases, even though they had antitoxin in their blood. Similar reactions could be obtained in these mothers with neutralized diphtheria toxin, showing that these were pseudo-reactions due to substances other than the toxin. They explain this as indicating that the reacting power on part of the tissues of the newborn had not yet developed. This needs further investigation.

During systematic testing of groups of children according to families, we were impressed with the frequency with which all the children of the same family gave a similar reaction. If variations were found, the younger children usually gave the positive reactions. If the youngest child had a negative reaction all the older children were also negative. On the other hand, if the oldest child in a family gave a positive reaction, the younger children with very few exceptions showed positive reactions. These striking facts, along with others, lead us to believe that there are other factors, possibly hereditary in character, in addition to infections with the Klebs-Lœffler bacillus (v. Behring, Kleinschmidt), which give rise to the presence of the so-called natural antitoxin. The large amount which is present in some of the cases is hard to explain; for example, two young children, six and one-half and three years of age, who had no history of clinical diphtheria, showed respectively fifteen and nineteen units of natural antitoxin per c.c. of serum. The large proportion of adult persons having antitoxin adds to the difficulty of considering the natural antitoxin as due to a previous infection as a case or as a carrier.

In a recent investigation by v. Gröer and Kassowitz the characteristics of the antitoxin present in persons who had never had diphtheria, as found in the newborn, appears to be identical with that due to immunization. This identity depends upon:

I. Its binding affinity and neutralizing power for diphtheria toxin.

II. The behavior of natural antitoxin toward physical and chemical agents; as, for instance, its absorption by Berkefeld filters, its destruction by heat, and its behavior toward acids and alkalies.

III. The chemical nature of natural antitoxin.—Natural antitoxin, like artificial antitoxin, is found associated with the pseudo-globulins of the serum.

With this test Schick attempted to place on a more rational experimental basis some interesting clinical problems in connection with the prophylactic and therapeutic dosage and mode of administration of antitoxin. By making the test at regular intervals previous to the injection of antitoxin, he found that neutralization of toxin in contact with tissue cells was still possible up to a certain number of hours. This was shown by the partial or complete suppression of the reaction. The efficiency of the injected antitoxin depended on the mode of administration and the size of the dose.

RELATIVE EFFICIENCY OF DIPHTHERIA ANTITOXIN ADMINISTERED IN DIFFERENT WAYS

Name	Age	Units	Admin.	20 hr. Prev.	6 hr Prev.	4 hr. Prev.	2 hr. Prev.	Simul.	2 hr Sub
A. B.	6^1	1000	S.C.		+ + +	+ + +	+ +	±	-
J.R.	4^9	1000	I.M.		+ + +	+ + +	+	-	-
I.W.	6^6	1000	I.V.		+	±	-	-	-
W.S.	6	20,000	S.C.		±	±	-	-	-
A.F.	6^6	10,000	I.V.	+ +					
G.S.	6	10,000	I.M.	+ + +					
F.M.	6^2	10,000	S.C.	+ + +					

S.C.=subcutaneous.
I.M.=intramuscular.
I.V.=intravenous.

We carried out some parallel experiments (see chart) attempting at the same time to see approximately how much more effective the same dose of antitoxin was when given intravenously than when given subcutaneously or intramuscularly. The Schick test was made six hours, four hours and two hours before and at the time of the injection of the antitoxin. With 1,000 units of antitoxin given intravenously even the six-hour reaction was considerably weakened, though not entirely suppressed. The four-hour reaction appeared very faint, while the two-hour reaction was negative. 1,000 units given subcutaneously had no effect on the four and six-hour reactions, only weakened the reaction made two hours before, while the simultaneous reaction was just visible. The same amount (1,000 units) given intramuscularly had a somewhat stronger effect than the subcutaneous injection, and prevented the appearance of the simultaneous reaction.

To obtain the same effect on the Schick reaction with the subcutaneous as was obtained with the intravenous injection of antitoxin, from ten to twenty times the amount was needed; 20,000 units given subcutaneously were able to affect the six-hour reaction to the same extent as 1,000 units given intravenously. When the Schick test was made 20 hours before the injection of the antitoxin, the intravenous injection of even 10,000 units of antitoxin had only a very slight effect in lessening the reaction, while the subcutaneous and intramuscular injection of the same amount of antitoxin had no effect whatever upon the reaction. In very toxic forms of diphtheria, therefore, where a large amount of toxin has already come in contact with the cells of the body with a resulting greater or less amount of fixation, large doses of antitoxin (10,000-20,000 units), should be given intravenously to neutralize as much as possible the effect of such partially-fixed or contact toxin. No further injections will then be necessary.

The Schick reaction was also used to determine the duration of passive immunity after the usual dose of 1,000 units of antitoxin. This was found to vary between 21 and 25 days, although occasionally we have obtained a positive reaction at the end of 15 to 18 days. The effect of a previous injection of antitoxin upon the duration of passive immunity as given by a second dose of antitoxin can also be studied in a very interesting way by using the Schick reaction. According to v. Behring, a primary injection of 1,000 units of antitoxin will protect for three weeks, whereas a secondary injection of a similar amount given at a time when the body is still sensitized by the first injection, will protect for only 5 to 8 days. This increased destruction of antitoxin is attributed by v. Behring to the production in the body, as a result of the first injection of the antitoxic horse-serum, of a proteolytic ferment, which causes a more rapid breaking down of the second dose of antitoxin. Römer and Viereck have shown the same increased destruction of antitoxin in sensitized animals.

Last year we had an opportunity of verifying these statements during an epidemic of diphtheria at a colored orphan asylum at King's Park, L. I. About 150 children who gave positive Schick reactions were immunized with 1,000 units of antitoxin. At the end of 30 days they were retested and a positive reaction again obtained. These children were then reinjected with a second dose of 1,000 units of antitoxin, and we now found that fully 60 per cent had destroyed the second dose in seven days, and another 10 per cent in 10 days. The fact that repetitions of the immunizing dose give, in a majority of cases, much shorter periods of protection than the first injection makes it difficult to prolong the period of passive immunity.

Kolmer and Moshage have recently claimed that in diphtheria there is a marked neutralization of antitoxin by the toxin developed by the disease. This neutralization is so active, according to these authors, that they were able to obtain positive Schick reactions at the end of five days in fully 17 per cent of patients, who had received therapeutic doses of from 10,000 to 100,000 units of antitoxin. Since the authors made no distinction between true and pseudo-reactions, we can only assume that their patients had antitoxin, but gave pseudo-reactions to the Schick test. To verify this assumption we tested 46 patients who had had clinical diphtheria, tonsillar or laryngeal, from 5 to 22 days previously, and had then received from 5,000 to 20,000 units of antitoxin. We obtained six pseudo-reactions and 40 negative reactions. The examination of the blood of the patients who had given the pseudo-reactions showed the presence of from ½ to 2 units of antitoxin per c.c. in each case.

The application of the Schick test to patients that have had diphtheria some time previously, has revealed some interesting points in connection with the type of immunity which they develop after the disease.

We attempted to trace a number of the patients who had had definite tonsillar exudates with positive cultures. Thirty-two such patients who had been treated at the Willard Parker Hospital, 3 to 4 months previously, were test by Dr. Rosenberg during an investigation of discharged contagious disease cases. Nineteen of the 32 gave positive Schick reactions, showing that they had become susceptible to diphtheria again, while 13 were negative.

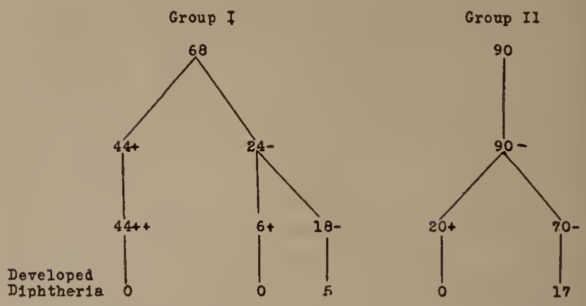
Fifteen children were also tested at the Howard Colored Orphan Asylum, Kings Park, L. I. Seven of the 15 had had diphtheria about one year before; of these five gave positive and two negative reactions; eight cases had had the disease about four months previously, and of these seven gave positive and one a negative Schick reaction.

At the Willard Parker Hospital, four patients were tested who were suffering from a mild type of tonsillar diphtheria. The Schick reactions were strongly positive on admission—no antitoxin was given, and the exudates cleared up at the end of 4 to 5 days. Tested with the Schick reaction two days after the disappearance of the exudate, it was again found strongly positive in every case. A similar strong reaction was obtained two and three weeks after the disease. These children had evidently developed little or no antitoxic immunity, and yet they made an uneventful recovery. Considering the small amount of antitoxin necessary to suppress the Schick reaction, we are forced to the conclusion that these patients had developed a bactericidal immunity only. The sera of these patients, however, gave no complement fixation.

It is interesting to compare the results obtained with the Schick test in patients after a recent attack of acute diphtheria with those obtained in the chronic tube cases, who have been at the Willard Parker Hospital for more than a year, and who show, as a rule, a negative reaction. Patients who have had diphtheria recently (2 to 3 months) frequently give a positive reaction which becomes negative if they remain for another 5-6 months. One child who had diphtheria in November, 1913, gave a positive reaction in January, 1914, and a negative reaction in August, 1914. Three other children who had diphtheria in March, 1914, were tested about the middle of August, 1914. One gave a negative, one a moderately positive and one a strongly positive reaction. They were retested two and one-half months later, and the following results were noted. The negative case remained negative; the patient that had given a moderately positive reaction showed now a very faint reaction, while the strongly positive case gave a much weaker reaction at this time. When we tested these children again two months later, *i. e.,* eight months after the illness they all gave a negative reaction, and blood examinations showed the presence of antitoxin.

The absence of antitoxin immunity in a large proportion of individuals who have had diphtheria, as seen at all tests in the children who received no therapeutic antitoxin injections, and in tests made after the disappearance of the horse antitoxin in those receiving injections, leads us to assume that diphtheria patients develop as a rule an antibacterial immunity, which is associated in only about one-third of the cases with an antitoxic immunity. Chronic reinfections with the Klebs-Loeffler bacillus, as seen in children who remain a long time in the diphtheria wards, finally lead in a majority of cases to the production of an antitoxic immunity.

These results obtained in children after an attack of diphtheria are very significant in connection with results which we obtained in the active immunization with mixtures of diphtheria toxin and antitoxin. The following tables summarize some of these results:



Presense of antitoxin, + (negative Schick test); absence of antitoxin — (positive Schick test).

In Group I, 68 patients were actually immunized. Of these, 44 had natural antitoxin and all gave a decided increase in antitoxin content after the injections; none developed diphtheria. On the remaining 24 patients who had no perceptible natural antitoxin, six gave rise to antitoxin production, while 18 failed to respond, though some gave a fainter Schick reaction than they had shown before the immunization. Of the six no one, of the 18, five developed clinical diphtheria.

In Group II, 90 patients were selected who had no natural antitoxin, as shown by blood examination and by a positive Schick reaction. Of the 90, 20 responded to the injection of toxin-antitoxin with the production of sufficient antitoxin to protect against diphtheria; 70 failed to respond, though some gave a fainter Schick reaction than they had shown before the immunization. Among the 20 no cases of diphtheria developed; of the 70 who produced no antitoxin 17 developed clinical diphtheria twelve days and more after the injection.

Active immunization, therefore, with mixtures of diphtheria toxin and antitoxin also fails to give rise within four weeks after the injections in about 75 per cent of non-immune patients to a sufficient antitoxin production to suppress the Schick reaction.

The large number of positive Schick reactions which we obtained in cases that had had diphtheria and in our actively immunized patients prompted us to immunize 210 scarlet fever patients, who gave a positive Schick test, with vaccines made from the Klebs-Loeffler bacillus (heated to 57 degrees C. for 45 minutes). Three to five intramuscular injections of 2,000,000,000 bacteria each were made at intervals of 4 to 5 days. Local reactions were generally noted, occasionally associated with a slight rise in temperature.

Of the 210 patients that were thus treated, 18 developed mild forms of clinical diphtheria; of these eight were tonsillar, nine nasal and one laryngeal.

After	1	Vaccine injection	4	developed	diphtheria.
"	2	" injections	4	"	"
"	3	" "	4	"	"
"	4	" "	3	"	"
"	5	" "	3	"	"

Thirty of the patients showed positive throat cultures with virulent bacilli but had no clinical symptoms.

These results with the vaccine alone are rather discouraging, especially in view of the claims made by several authors of the therapeutic value of such vaccines in carriers. Not only did we fail with these vaccines in ridding carriers of their organisms, but what is more important, we even failed to immunize about one-quarter of the injected individuals against becoming carriers or developing clinical symptoms.

SUMMARY.

In reviewing then some of the more important applications of the Schick reaction we wish to emphasize:

(1) The absolute reliability of the test in showing the presence or absence of antitoxic immunity to diphtheria, a negative reaction indicating that the individual is protected, probably indefinitely, against the disease. This was especially well shown in the group of 656 scarlet fever cases who remained free from clinical diphtheria, although they were constantly exposed to infection during periods of from 4 to 8 weeks. It is also important to note that about 15 per cent of these patients harbored virulent diphtheria germs at one time or other during their stay in the hospital. The great majority of positive reactions in children are true reactions and indicate an absence of antitoxin, and therefore a susceptibility to diphtheria. Among adults the pseudo-reaction is seen in a certain proportion of individuals, but this reaction will disappear in 3 to 4 days, leaving a distinguished clinically from the true reaction. The two reactions may be found combined in the same individual: in such cases the pseudo-reaction will disappear in 3-4 days, leaving a distinct circumscribed area of scaling pigmentation due to the positive reaction.

(2) In determining the efficiency of the active immunization of susceptible individuals, who have been injected with a mixture of diphtheria toxin and antitoxin. For this purpose only positive Schick cases should be chosen, and after the injections they should be tested at intervals of one, three, six and twelve months to determine whether a sufficient amount of antitoxin has developed to inhibit the Schick reaction showing thereby the production of an active immunity to diphtheria.

(3) To clear up the diagnosis of clinically doubtful cases of diphtheria. With a purulent or sanious nasal discharge showing the Klebs-Loeffler bacillus it is difficult to decide whether the case is a carrier or a beginning diphtheria. A negative reaction excludes diphtheria, while a positive Schick reaction leaves the diagnosis of diphtheria still a probability. A case of tonsilitis due to the streptococcus in a carrier of diphtheria bacilli, would by the use of the culture alone be thought to have diphtheria and in danger of extension of the disease. A negative Schick reaction would indicate the case to be simply a carrier, and in no danger from the effects of the diphtheria poison.

(4) The Schick reaction has added further experimental proof to the clinical experience that very toxic cases of diphtheria require the early intravenous administration of large doses of antitoxin. Although we know that even the intravenous injection of antitoxin is practically hopeless in some of the late cases of diphtheria, the results with the Schick test will serve as a reminder that every case of clinically suspicious diphtheria should be treated promptly with antitoxin; that a day, and, in fact hours of delay in the administration of a therapeutic dose of antitoxin may mean the absorption of a fatal dose of diphtheria toxin, which becomes firmly bound to vital tissues.

(5) The results obtained with the Schick test in families seem to indicate that besides infection with virulent diphtheria bacilli, other factors, possibly hereditary in nature, are concerned in the production of natural immunity to diphtheria. The absence of antitoxin immunity in more than 65 per cent of individuals after an attack of diphtheria or after treatment with mixtures of toxin and antitoxin shows that the tissues have never had, or have never acquired the ability to produce antitoxin.

(6) After an attack of diphtheria, the Schick test may be used to determine whether the individual has become immune to a second attack of the disease.

(7) The use of the Schick test in carriers of diphtheria bacilli will be of service in showing the necessity of using antitoxin to protect those who react positively and who are to be operated upon for nose or throat conditions. Carriers of virulent bacilli may have a strongly positive Schick reaction, indicating an entire lack of antitoxin, and yet they may remain free from clinical symptoms. This shows that such individuals, while they have no general antitoxic immunity, probably have a local immunity which protects them sufficiently. A catharrhal condition of the mucous membrane or an operation of the nasal septum or turbinates or the removal of the tonsils and adenoids may break down the local immunity and such carriers are then very apt to develop clinical symptoms of diphtheria, unless they have been just recently protected by an immunizing dose of antitoxin.

(8) During an epidemic of diphtheria in an institution we may use the Schick test to advantage in controlling the spread of the disease. All inmates should be tested and only the positively reacting cases immunized with antitoxin. The carriers should be isolated and receive a thorough local treatment. According to Meader, diphtheria bacilli are found embedded deeply in the tonsillar crypts of carriers, and he advises

the enucleation of the tonsils for the radical cure of such carriers. They should, however, if they react positively to the Schick test, receive an immunizing dose of antitoxin before the operation.

(9) In contagious disease hospitals the Schick test has a distinct value as a routine procedure at the time of admission in cases of scarlet fever and measles. If they react negatively they need no further immunization against diphtheria. If they show a positive reaction, they should receive 1,000 units of antitoxin; the same dose of antitoxin is repeated if the patients remain in the hospital for more than three weeks. We can thus prevent secondary cases of diphtheria from developing during the convalescence of scarlet fever and measles. Physicians and nurses, attached to such hospitals should also be tested and if they react positively, an attempt might be made to produce an active immunity in them by the injection of mixtures of diphtheria toxin and antitoxin.

(10) In many general hospitals the custom of giving every child on admission a passively immunizing dose of antitoxin, might be replaced with advantage by using the Schick test and only injecting the positively reacting patients.

(11) In private practice, the use of the Schick test will save from immunizing a large proportion of the adult members and many of the children in the family.

We can thus find numerous applications for a test, which is absolutely reliable, and which indicates with certainty the susceptible and the non-susceptible. It has a distinct economical value in saving a large amount of antitoxin, and avoids the unnecessary sensitization of more than 50 per cent of exposed individuals.

In conclusion I wish to state the hope that the ability to separate clinically those who are susceptible to diphtheria from those who are immune will arouse an interest in the more widespread use of an active immunization to diphtheria (toxin-antitoxin) which will enable us to control and possibly finally eradicate the disease, some forms of which still have a mortality of from 30 to 40 per cent.

Discussion.

Dr. Charles Herrman, New York City: The Schick reaction has proved itself of great practical value especially in institutions such as schools, asylums and hospitals. We recently had several cases of diphtheria in the children's ward of the Lebanon Hospital; one patient died. Cultures were made from the nose and throat of nurses, physicians and patients and seven nurses, one physician and several children, were found to have positive cultures. The Schick test was applied to all the nurses and patients in the wards in which positive cultures were obtained and all those who gave a positive reaction were immunized. Only those nurses who had a negative Schick reaction were allowed to attend patients who had a positive culture. In this way the further spread of the disease was prevented. In addition to the value of the reaction in the selection of the patients requiring antitoxin; in ascertaining the proper dose of antitoxin to be given, and in determining the relative value of the different methods of application, I should like to mention two ways in which it may prove useful. It is well known that patients with measles are especially susceptible to diphtheria and that it is apt to be more malignant in them. On that account in many institutions all such patients are immunized. This reaction makes it possible to pick out the susceptibles and also to determine when they require a re-injection. Many have obtained good results in the treatment of post-diphtheritic paralysis with antitoxin; others claim that as the toxin is inseparably bound to the nervous structures it cannot be of any value. In those patients who give a positive reaction the administration of antitoxin would certainly be indicated. The fact that over 90 per cent of the newborn give a negative reaction shows conclusively that immunity cannot be due to previous exposure or infection in all cases and that the newborn may possibly be able to elaborate its own antibodies.

Dr. George W. Goler, Rochester: To Dr. William H. Park and his co-workers, chief among them Dr. A. Zingher, we owe much of what we know of the Schick test today. The Schick test is as valuable a test for susceptibility in diphtheria as is the administration of diphtheria antitoxin as a remedial and preventive agent. It took us nearly 20 years to learn how properly to use diphtheria antitoxin, as we all know from small doses of diphtheria antitoxin, oft repeated, we passed to the administration of enormous doses of antitoxin; and it was due chiefly to Dr. Park and his co-workers that we later learned to administer it in an early, single, sufficient dose.

The Schick test is useful because it enables us to distinguish persons susceptible to diphtheria from those immune to the disease, and by so doing to immunize them. In a somewhat limited use of the Schick test, we have been struck with its usefulness, not only in separating immunes from susceptibles in institutions by enabling us to test nurses and possible immune nurses for work in the infectious disease wards of our hospitals, but we have found it quite as useful in the separation of susceptibles from immunes in families where one or more patients are attacked by diphtheria. It is also of value in saving diphtheria antitoxin; for, where heretofore it has been freely administered to all persons exposed to diphtheria, by the use of the Schick test it need only be given to those persons susceptible to the disease.

In the City of Rochester last year there were reported 345 cases of diphtheria. In 12 per cent of the cases there was more than one case of diphtheria in the same family, and in these families in which more than one case occurred the secondary cases were not the result of late cross infections, but in the majority of instances double infections occurred at or near the same time as the initial case. It appears, therefore, that the value of the Schick test will be increased when it is distributed to physicians who shall become used to the simple technique of the test. To that end we have placed at the disposal of the physician diphtheria toxin and salt solution for making the Schick test after the procedure of the New York City Health Department, and the following simple directions for use of the test are given: "Infiltrate two drops of the solution into the skin of forearm. If the person who receives this injection is *not immune* to diphtheria a red spot, varying in size from a 10-cent piece to half a dollar, will appear within 18 to 36 hours, with the ordinary signs of localized inflammation and with *desquamation.* If the patient *is immune* a slight red spot may appear, though there is usually no reaction.

"The test will fail if you inject the solution under the skin.

"The sign that the solution has been properly infiltrated will be a small white wheal at the point of injection. If you *do not get this wheal* the solution has gone under the skin and the *test will fail.*"

In this way we hope physicians will early familiarize themselves with the test which Dr. Zingher has done so much to popularize. It is of prime importance to have freshly diluted toxin for this test. This dilute toxin is very susceptible to warmth and light. It should be kept on ice and in the dark. Failures in the test have been due to a lack of attention to these matters.

It is not enough, however, to rely upon the Schick test alone. Patients may be immune to diphtheria, as shown by the Schick test and yet be diphtheria "carriers." It is, therefore, necessary for us to determine susceptibility or immunity in diphtheria by the Schick test, but it is of almost equal importance for us to determine whether the members of the family or inmates of an institution where diphtheria occurs, are or are not "carriers." To this end we shall have to use the culture method in diphtheria in all members of infected families, together with the Schick test, if we are to one day succeed in making diphtheria a disappearing disease.

Dr. Albert D. Kaiser, Rochester: I have tried the Schick test on 300 cases in the contagious department and children's ward of the General Hospital. No case of diphtheria has developed in an individual with a negative reaction. I have been impressed by the severity of some reactions leaving longstanding pigmented areas.

The test has been of use in determining whether sufficient antitoxin has been given for curative purposes on selected cases where small amounts of antitoxin had been given before the patient was admitted to the hospital. All nurses and employees have been tested who are connected with the contagious department. The susceptible individuals are carefully watched and are given antitoxin only when they have some clinical evidence of throat trouble or knowledge of a definite exposure.

HEREDITARY SYPHILIS IN CHILDREN: LATER MANIFESTATIONS AFTER THE AGE OF ONE YEAR.*

By L. E. LA FETRA, M.D.,

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FROM the title of my paper as given to me by the Chairman of the Section, it will be seen that it includes a consideration of the later symptoms of early congenital syphilis as well as more particularly the manifestations of the so-called late hereditary syphilis. Although useful and interesting clinically, the distinction between early and late hereditary syphilis is somewhat arbitrary and artificial. There is really no definite time limit but it has been the custom to consider the manifestations of hereditary syphilis that appear first about the time of the second dentition, as those of late or tardy hereditary syphilis. In general these correspond largely to those of the tertiary stage in adults while the symptoms of congenital or precocious hereditary syphilis correspond largely with those of secondary syphilis of the adult; but even in early infancy visceral and bone changes may occur, while on the other hand, in the period following infancy there may be outbreaks of condylomata and of various secondary skin manifestations. The symptoms of the hereditary taint, whether early or late, will depend for their number and severity largely on the virulence of the inherited syphilitic infection, so that all grades of the hereditary disease may be met with, from the mildest types, in which little or nothing can be found abnormal, to those with frightful deformities from tissue loss, or with severe mental impairment or paralysis.

In bodily appearance the subject of hereditary syphilis may show some stunting of growth and a sallowness or yellow pallor of the skin. This may be due to the general cachexia or to some special effect on the ductless glands. There may also be scars in the form of pock marks on the forehead and cheeks, the result of deep lesions in earlier life. In the early years the skull may be rather large and square with evidences of rachitic hypertrophy of the bosses on the frontal and parietal bones, and in young infants the presence of craniotabes. Syphilis predisposes to early rickets; hence these changes. The head may be large also because of syphilitic hydrocephalus, which in many instances may be arrested either spontaneously or by treatment, or the hydrocephalus may progress until the skull bones are thinned almost to parchment. In one of my cases the head measured twenty-three inches in circumference at thirteen months. In later childhood the frontal bones may be rough and irregular, with tender spots due to the presence of gummata.

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In the eyes a steamy or ground glass appearance of the cornea may be present or may appear at any time, due to interstitial keratitis. The transparency of the pupil may be lost in varying degrees, with impairment of vision. Besides this interstitial keratitis, which is the most frequent ocular manifestation, the eye may suffer from iritis, resulting often in fixation and irregularity of the pupil, or, in rare instances there may be chorioretinitis, which in severe cases is accompanied by optic neuritis and atrophy.

There may be deafness due to otitis which is not specific but predisposed to by the specific enlargement of the lymphoid tissue of the nasopharynx and by the syphilitic rhinitis; but the characteristic deafness is central in origin and due to specific degeneration of the auditory nerve or involvement of the labyrinth.

Saddle or pug nose, and rhagades or their scars at the corners of the mouth or lower lip may remain from earlier lesions. These radial scars about the mouth are practically pathognomonic. Snuffles may persist from early infancy or may recur in early childhood.

In patients above the age of six years there may be present the characteristic changes in the teeth, first described by Hutchinson. It cannot be emphasized too often that it is only the upper central incisors of the second dentition that show the characteristic changes of hereditary syphilis and that there are many deformed teeth with erosion of the enamel, produced by other diseases, especially by measles or other severe febrile disease occurring during early childhood. Again it should be remembered that normally when the new teeth appear to replace those of the first dentition they have a regularly serated cutting edge and also longitudinal furrows. The enamel in these teeth, is, of course, perfect and as the cutting edges become worn by apposition with those in the other jaw, these normal serations disappear.

There are three types of Hutchinson's teeth: One in which the teeth are peg-shaped and widely separated from each other, the second in which the teeth are of the screw-driver shape, the cutting edge being narrower than that at the gum, and the sides being straight, and a third form in which the cutting edge is narrow, but the sides are convex. In all these three types, there is at the cutting edge and just above it a deficiency of the enamel and often of the underlying dentine, producing a regression or shoulder on the tooth, so that in the first type or peg-shaped tooth the cutting edge is irregular, while in the other two forms there is a crescentic notch. This frequently gives to the third or curved type an appearance that suggests a pair of pincers or a lobster's claw. Although many observers have reported the presence of such tooth abnormalities in conditions other than syphilis, I have never met with such a case, and always consider its presence a presumptive evidence of hereditary syphilis. It must be borne in mind, however, that these tooth abnormalities are frequently absent even when there are characteristic syphilitic changes in the bones in other parts of the body. I have frequently seen multiple bone lesions involving the skull and the long and short bones of the extremities, without any change whatever in the teeth. The patient from whom the numerous X-ray plates are being shown, including one of the skull, has the most marked bone changes I have ever seen, and yet without typical Hutchinson's teeth. Her upper left central incisor is somewhat deformed and suggests the screw-driver type of tooth, but it is not at all characteristic.

A persistent hoarse voice due to syphilitic thickening in the larynx or epiglottis may be at times the only symptom, as in a patient of mine, ten years old. In this case the Wassermann reaction showed sixteen units, but after the administration of neo-salvarsan and gray powder the voice almost entirely cleared.

The chest rarely shows any abnormality, but there may be found a chronic bronchopneumonia, the so-called "white pneumonia," due to interstitial change of syphilitic origin. One of my patients, two and a half years old, had such a condition and along with it an enlarged liver with ascites and also a chronic nephritis. In this case there was no fever, but the X-ray print which is shown herewith, was quite characteristic, and the Wassermann reaction was strongly positive. With some of these cases there may be associated with the interstitial change a dilatation of the bronchii.

Warthin, Findlay and Robertson have in recent papers emphasized the fact that syphilis may frequently cause cardiac disease which may take the form of gummata or of interstitial myocarditis. My experience has been limited to the congenital abnormalities of the heart accompanying hereditary syphilis. I have never recognized syphilitic myocarditis in older children.

Enlargement of the spleen is found in the great majority of hereditary syphilitic patients, and the younger the patient, the greater the frequency of this enlargement.

Enlargement of the liver is very common and rarely this may go on to a severe type of interstitial hepatitis with or without the association of ascites. Syphilitic nephritis, which in later childhood is of the interstitial form, may be present, as shown by the urinary findings, and it is very probable that many of the cases of unexplained kidney disease in children have their origin in hereditary syphilis, and this causation would be recognized more frequently if the Wassermann test were done on all cases of nephritis of undetermined origin.

Enlargement of the testes in early childhood or enlargement followed by atrophy in later childhood is almost diagnostic of syphilis, provided tuberculosis can be excluded.

Radial scars of old rhagades at the anus are frequently present, and condylomata at the anus or also at the vulva may be present or may recur not infrequently up to the age of four years, rarely as late as the tenth year. After five years they are very infrequent.

The extremities may show dactylitis or enlargement of the metatarsal bones which resemble very closely the spina ventosa, due to tuberculosis. The differential diagnosis can usually be made by searching in the rest of the body for evidences of syphilis or if this cannot be found, by the presence of a positive Wassermann reaction. The von Pirquet test is also of value here.

The most characteristic manifestations, however, of late hereditary syphilis are the changes that take place in the long bones. There is either a simple hyperplastic periostitis or osteoperiostitis, or a gummatous osteoperiostitis, or a gummatous osteomyelitis. At times all these processes are found in the same patient, and at times even in the same bone! Results of these processes are an increase in the size of the bones, with at times areas of softening and necrosis; spontaneous fractures may result from the deeper lesions. If the gummata break down and discharge through the skin, adherent scars are formed. All these bony changes are most apt to affect the lower legs, the tibia especially. On account of the frequent and pathognomonic character of this involvement the French call the tibia the "telltale bone." There is thickening and flattening of its anterior border with usually an anterior curvature, which has given rise to the name of the "sabre-blade tibia." In distinction from the anterior curve that is often met with in rachitic deformity of the tibia, it is to be remembered that in the syphilitic form there is a marked increase in the thickness of the internal surface of the bone, and not simply a bending forward of the whole bone. That is to say, the posterior border of the internal surface is relatively straight in syphilitic "sabre-blade," while in the rachitic form the posterior border curves forward to be almost parallel with the anterior border. Frequently in addition to the enlargement and curvature of the tibia there is marked irregularity of its surface and occasionally larger or smaller nodules or indentations, these last due to breaking down of the new-formed bone or of gummata. The bone is apt to be tender upon pressure or tapping, and frequently the children complain of pain on movement or upon walking. The X-ray plates which are being passed show the most marked and various changes in the tibia from syphilitic bone disease which I have ever seen. It will be noted that at the lower portion there is evidence of loss of tissue which in this case was due to presence of gummata, which broke down and discharged through the skin.

The extremities may show other changes, most important of which is multiple arthritis. This syphilitic arthritis is a late manifestation and is most commonly met with in the knees and in the ankles, and is usually bilateral, but at times it may be present only on one side. I have seen one such case of unilateral syphilitic gonitis in which there was involvement of the adjacent bones with great increase in the size and length of the tibia, so that there was a difference in the length of the two extremities of over 1½ inches. Hochsinger describes two main types of the disease, one without involvement of the adjacent bone and cartilage and one with enlargement of the bone ends. When the bones are not involved there may be a simple effusion with no thickening of the synovial membrane, usually affecting the knee and ankle, or the effusion may be accompanied by thickening of the synovial membrane, joint capsule and adjacent tendon sheaths. This form usually affects the small joints of the fingers, wrist and foot, and in such cases friction rubs can be felt and heard. The commonest form, however, is that in which there is an effusion and also swelling of the joint ends of the bones, so that the cases may resemble arthritis deformans. There is very little pain or loss of function and rarely any fever.

According to Ibrahim the nature of this arthritis is frequently discovered by the oculist consulted to treat the child's eyes. He discovers a parenchymatous keratitis which comes on usually months or years after the first symptoms in the joints. Pains in the joints or legs are not uncommon symptoms of hereditary syphilis, and many an obscure case of so-called rheumatism or growing pains in later childhood is to be explained upon the basis of late hereditary syphilis.

Skin.—In very young children the skin lesions consist of the maculo-papular eruption or its pigmented remains, or of condylomata; in later childhood there are the small nodular syphilides with more or less serpiginous arrangement and the larger nodules due to gummata in the skin or underlying tissues. When these have broken down they leave a pigmented scar.

Hypertrophy of the lymphoid tissue is general throughout the body, involving the lymph nodes of the neck, axilla, groins, and especially the epitrochlear spaces. Moreover the adenoid tissue of the nasopharynx and the tonsils share in this enlargement. Most important for diagnostic purposes are the epitrochlear lymph nodes. If both of these are enlarged, and there have been no skin lesions on the hands or forearms, the finding is almost pathognomonic of syphilis. Rarely an exception occurs, for the most marked double epitrochlear gland enlargement I ever saw occurred in a patient not syphilitic, but suffering from tuberculous dactylitis or spina ventosa of both hands. With precaution against these two sources of error—pyogenic or tuberculous infection below the elbows, bilateral epitrochlear enlargement may be relied on as a most valuable sign of hereditary syphilis.

Central Nervous System.—Since the employment of the Wassermann reaction, and since the finding by Noguchi of spirochætæ in cases of general paresis, the involvement of the central nervous system by hereditary syphilis has been proved far more common than formerly supposed. Almost every form of nerve tissue disturbance has been found due to the organism of syphilis. A list of the various disturbances covers the most of neurology and psychiatry. Nocturnal headaches, mental impairment of all grades from lack of concentration to imbecility, convulsions, hemiplegia, epilepsy, chorea, juvenile general paralysis and early tabes. Findlay and Robertson state that sixty per cent of mental defectives are congenitally syphilitic; Veeder and Jeans report forty-three per cent of their cases of late hereditary syphilis as having involvement of the central nervous system. Among their thirty-two patients were fourteen of mental deficiency, eight of cerebro-spinal syphilis, four of epilepsy, four of paralysis, two of hydrocephalus and two of chorea. Haberman has recently reported two cases of chorea that were rapidly cured by antiluetic treatment, after the usual measures failed. Yerrington has reported one case of chorea with rapid improvement after two injections of salvarsan. In view of the improvement that may reasonably be expected in many of these nervous and mental cases, the possibility of hereditary syphilis as their cause should be kept in mind, and a Wassermann test done in all cases.

To give some idea of the clinical types of hereditary specific disease met with in children, I have gone through the records of the Bellevue Hospital Children's Service for the past two and one-half years. During all this time careful Wassermann tests have been made on all cases with suspicious physical signs or symptoms. In the period investigated there were 148 cases of syphilis admitted to the wards. Of these, three were cases of acquired syphilis, eighty-five were hereditary but under one year of age, and the remaining sixty were of the hereditary type and over one year. Of these sixty patients there were ten that showed no symptoms nor physical signs at all characteristic of hereditary syphilis. One child of six years had no symptoms nor any abnormality whatever; she was sent into the hospital for treatment because she belonged to a syphilitic family, and because on this account a Wassermann reaction had been taken and found strongly positive. One child of a year had persistent head colds; another one of fourteen months had an enlarged spleen; one child two years old had some weakness of the right leg; three ranging from three to seven years old had indefinite rashes or pigmented scars on the skin; a child of five years had a speech defect, and two children of about three years had convulsions and backward development.

It should be noted here that by reason of the activity in prophylaxis of the Social Service Bureau of the Hospital, many cases are sent into the wards simply because the children belonged to syphilitic families, or because in addition a Wassermann test had been found. Many of these patients show absolutely no abnormality or they may exhibit some equivocal eruption. From the Wassermann test, however, it was known that they were all suffering from a serious constitutional disease, which, though dormant, was liable later to a serious outbreak, either in the bones, eyes or the central nervous system.

Of the sixty cases there were suspicious or equivocal signs in twenty-one, which may be briefly enumerated as follows: A child of six years had pigmented scars; one child of one and one-half years had a maculo-papular rash; three children, three to four years old, had respectively chronic sores on the legs, a chronic ulcer with enlarged epitrochlear nodes and chronic ulcer with enlarged spleen and enlarged epitrochlear glands; a child eight years old had areas of alopecia; a girl nine years old had keratitis; five children from one and one-half to ten years old had enlarged epitrochlear glands alone; a child three and one-half years old had an enlarged spleen and epitrochlear glands; one of five years had enlarged spleen, enlarged liver and epitrochlear glands; one child had convulsions followed by epilepsy; a child eleven years old had epilepsy; one child of seven years had hemiplegia and enlarged epitrochlear glands; an infant one and one-half years old was backward in development, and had a severe choroiditis, with resulting atrophic changes in the retina and choroid; one child two and one-half years old had a large liver accompanied by ascites, also nephritis and chronic pneumonia.

In none of these cases were the signs, though suggestive, sufficiently characteristic at the time of admission to warrant a positive diagnosis.

Twenty-nine of these sixty cases had signs that were characteristic of hereditary syphilis, as follows: A child of two years old had a squamous syphilide and onychia; two children aged sixteen months and three and one-half years had condylomata with a maculo-papular eruption; six children ranging from fourteen months to ten years had condylomata, or these in addition to rhagades or enlarged epitrochlear glands; three children from thirteen months to eight years had the scars of rhagades at the corners of the mouth, one with additional perforation of the palate, and another with enlarged epitrochlear glands; a child of ten years had a chronic laryngitis, diagnosed as syphilitic by our consulting laryngologist; a child of eight years had a typical saddle nose and enlarged epitrochlear glands; another child of eight years had iritis and general paresis; a child of one and one-third years had keratitis and osteal thickening of all the long bones; a child of four years had keratitis, pigmented scars and enlarged epitrochlear glands; a child of ten years had Hutchinson's teeth and keratitis; a child of nine years had Hutchinson's teeth with backwardness in mental and physical development, and one of seven years had Hutchinson's teeth and attacks of bloody urine; a child of eleven and three-quarter years had joint swellings in the arms and legs with sabre-blade tibiæ; seven children ranging from four to eleven years had typical changes in the bones of the legs or arms, or both, with or without other syphilitic changes.

It is to be noted that the commonest signs among the younger children were the eruption, rhagades and condylomata; while among the older children the changes in the bones were met most often (eight cases); next in frequency were feeble mindedness, backward development and affections of the central nervous system—such as epilepsy, hemiplegia or general paresis. There was no case of chorea nor of juvenile tables in this series.

It is remarkable, in view of the stress laid by all teachers upon the symptom of Hutchinson's teeth in late hereditary syphilis, that among the twenty-four patients in this series over six years old this deformity was present only four times; Hutchinson's teeth were associated with interstitial keratitis in one case. Not once in this series was Hutchinson's triad of teeth defect, keratitis and central deafness met with. The combination of signs is undoubtedly pathognomonic, but in my experience the complete triad is seldom developed except in very severe and neglected cases.

Enlargement of the epitrochlear lymph nodes was present in eighteen out of the sixty cases, and so was the most frequent single symptom except the Wassermann reaction.

The most important lesson one derives from a consideration of the symptoms and signs found in cases of hereditary syphilis is the well worn conclusion that an early diagnosis, with its corollary of vigorous treatment is of the highest possible value to the patient. As an aid to this early diagnosis in doubtful cases the Wassermann test carefully made by a competent man may be relied upon almost absolutely. It is exceedingly rare that the test fails to comport with the physical signs, and in such cases there is usually either delay in having the blood reach the laboratory, the serum becoming anticomplementary, or there is something wrong with the antigens used in the test. The more frequently the Wassermann test is employed—especially in mental and nervous cases, the greater the number of correct diagnoses we shall make, and the greater our success in treating these distressing conditions.

SYPHILIS IN THE PARENTS AS A CAUSE OF FEEBLE-MINDEDNESS IN THE CHILDREN.*

By HENRY H. GODDARD, Ph.D.,
VINELAND, N. J.

IN the popular mind a goodly percentage of feeble-mindedness is accounted for by the syphilitic condition of one or both parents. Among the profession great differences of opinion exist, and the percentages vary from two or three up to thirty or forty, and in extreme cases to even double the last figures.

That syphilis occurs in the parents of defective children, or that the defectives themselves give a positive Wassermann reaction in such percentages of the cases according to the group studied must be accepted. But we would call the reader's attention to the fact that such an admission has nothing to do with the *cause* of feeble-mindedness. If one found upon investigation that 30 per cent of the parents of defectives were subject to coryza, one would not be likely to attribute the mental defect of the children to the coryza of the parents. Yet it is as logical as most of the conclusions in regard to syphilis. Apparently the explanation of our easy acceptance of the conclusion in the one case, and not in the other, is that we feel that syphilis, being such a dread disease, is capable of all the evil consequences that may occur to us.

In reality, we all know that the causal relation is exceedingly difficult to establish. To prove such a relation in any important situation is enough to insure a man a place in the world's Hall of Fame.

If two things stand in such relation to each other that whenever one is present the other is present, and when one is absent the other is absent, such two things are either related as a cause and effect, or are both the effect of some other cause. The usual method of procedure when a causal relation is suspected is to try to eliminate all other possible causes and see if the effect follows from the one supposed cause.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 29, 1915.

This has rarely been attempted in the case of syphilis and feeble-mindedness. Observers have been content to note that the parents were syphilitic in so many cases, and without noting that they were also feeble-minded, have concluded that the syphilis was the cause. Or they find positive Wassermanns in so many defective children, and never consider that these children had suffered from meningitis or other equally serious diseases.

In view of the foregoing I shall not take your time with extensive quotations from the literature. Unfortunately it largely falls under the criticism above made, and either makes no attempt to establish the relation in question (although it may often be quoted as though it did), or if the attempt is made the conclusion is illogical. In this connection I may say that our own results, which I shall give in this paper, are wholly negative. I have analyzed them, with the result that I find it impossible to prove that syphilis in the parents is a cause of feeble-mindedness in the children.

Among the more important literature we find Tredgold says: "There is no doubt that syphilis is capable of producing an impairment of germ cell, resulting in a condition of primary amentia, probably undistinguishable from other cases, or which may possess hitherto unrecognized particular features. Or, the poison may act upon the embryo after fertilization." He is disposed to think that congenital syphilis alone rarely produces distinct amentia; a neuropathic taint is likely to be present. If the child is predisposed to nervousness, the syphilis will find the weak spot. His experience showed 2.5 per cent of cases to be syphilitic, that is, cases directly due to the specific virus, but in many other cases the history is misleading, detection difficult. He refers to various opinions resulting from Wassermann tests:

France: Raviart and others, 30 per cent.

Germany: Krober, 21 per cent; Kellner, 3.7 per cent.

Thomsen and others (Serum Inst., Copenhagen, presumably), 1.5 per cent.

America: Atwood, *Jour. Amer. Med. Asso.*, v. 56, 1911, 15 per cent.

England: Dean, *Lancet*, July 23, 1910, 15.4 per cent.

Thomas, Report of the Lunacy Commission, 1913, 4.8 per cent.

Gordon, *Lancet*, September 20, 1913, 16.5 per cent.

Gordon examined 400 cases, various forms of congenital mental deficiency; results analyzed according to clinical conditions. In this simple variety of amentia, there was positive reaction in 11.9 per cent without paralysis, 31.8 *with paralysis*. Several others reacting negatively, yet showed definite syphilitic lesions (Tredgold, pp. 267-92, Mental Deficiency, 1914).

Mott says: "It may be a biological heresy, but it is firmly rooted in the minds of the majority of practising physicians that a chronic blood-poisoning (especially when occurring in successive generations) produced by the racial poisons, alcohol, syphilis and tuberculosis, can *per se* cause degeneracy in a healthy stock, by a pathological mutation of the germ plasm, which can be transmitted."

Felix Plaut says: "Whether there exists a form of congenital feeble-mindedness of severe grade, due to syphilis, is at least questionable . . . it can scarcely be reckoned a notable factor in the origin or idiocy."

Atwood, surprised at the figures of Lippmann (33.8 per cent of idiots syphilitic) undertook some investigation, tests made by Noguchi, at the Rockefeller Institute, with 204 idiots of low grade, various types, from 5 to 50 years of age. Thirty patients, or 14.7 per cent, reacted positively, 20 of them women (all patients under 40 years who reacted positively), stigmata apparent in only 4, 23 *per cent were diplegics*, seeming to indicate that there are causative lesions due to syphilis, which result in such conditions as incomplete development of the vascular system.

Moulton at Faribault, Minn., found in 600 cases of feeble-minded children 12.8 per cent positive Wassermanns.

Dawson at Eldridge, Cal., found 5 per cent positive in an examination of 1,113 cases. He accounts for small percentage on basis of small amount of syphilis on the Pacific Coast.

Finally, Mott, F. W. (Congenital Syphilis and Feeble-mindedness, Archives of Neurology and Psychiatry, v. 5, 1911, p. 1-51), says that his earlier views of the seriousness of the subject, as expressed to the Royal Commission, have been much strengthened by personal investigations and results of tests in various countries by other parties. He thinks the higher German percentages probably correct, more carefully obtained than the English. He says it is "important to decide whether congenital syphilis is a cause of arrest of development of the brain (apart from its causing gross lesions) either by the influence of a chemical toxin, or some failure of sufficiency of a biochemical substance upon the developing embryo" (p. 1). The author appears to commit himself to this view, though cautiously. He says: "If syphilis can produce bodily infantilism, including arrest of development of the reproductive organs—a not infrequent condition in juvenile general paralysis—surely there is no reason why it may not lead to arrest of development of the most highly differentiated and specialized tissues of the body, i. e., the cerebral cortex" (p. 17). He shows that syphilitic conditions which prevent the escape of the cerebrospinal fluid from the lateral ventricles may occasion hydrocephalus, the condition being the result of an accumulation of the spinal fluid in the lateral ventricles: infancy, childhood and adolescence, in congenital syphilis are subject to the same forms of brain syphilis as the adult with acquired syphilis: congenital syphilis is not important as a factor in the production of encephalitis, which is more probably due to asphyxial conditions at birth, head injury, or infectious diseases of childhood. Syphilis may influence the germ plasm and *per se* lead to production of imbecility, it is positive that a neuropathic taint, latent some time, will be brought out by it. He ranks it with alcoholism—"Were it not for the fact that both these poisons are deadly as well as devitalizing, the effects on humanity would be cumulative and lead to racial annihilation."

Our own results are as follows:

We have tested 81 cases of feeble-minded children by the modified Noguchi method, using both blood serum and spinal fluid. Each case was very carefully checked up by the use of five different antigens. Of the 81 cases, 20 or 24.7 per cent were positive. This result, however, is of little or no value as bearing upon the question of the percentage of feeble-minded who show positive Wassermanns, since these cases were selected in two ways. First we began with our low grade or idiot group. Second, we later added some cases whose family histories we were studying, and in which we found a history of syphilis, and were accordingly desirous of knowing the condition of the child in the institution. The cases ranged in age from 9 to 68 and in mentality from 1 to 10. All but 6 were males. The ages of those giving a positive reaction were distributed as follows: Mentality 1, three cases; 2, eight cases; 3, three cases; 4, three cases; 6, two cases; 9, one case. The latter was the only one of the group that showed evidence of having had a direct infection. Of the 81 cases studied, we shall confine ourselves for the rest of this paper to the 70 including the 20 positives whose family histories we have studied.

Of the 20 cases giving a positive result five showed a history of syphilis somewhere in the family. In one, the father's father and father's mother were syphilitic. In one, the father, mother and sister were syphilitic. In one, the mother's aunt was syphilitic; in one, the father, and in another one, the father's brother. The other 15 positives had no record of syphilis in their families, so far as we could obtain the facts.

Of those giving a negative result, nine had a history of syphilis in the family. In seven cases, it was the father who was syphilitic; in one case, the former husband of the mother, and in one case, the paternal aunt.

The 20 positives are further grouped according to our classification of causes as follows: Nine belong to the group of hereditary feeble-minded; three to the neuropathic ancestry; three to meningitis, two were mongolian type; two to accidents before birth, and one is unclassified as to cause, since no cause was assigned, and none was found in the family history, the brothers, sisters, parents, uncles and aunts all being normal and free from neuropathic taint. One brother, indeed, had a defective child, a case of acromegaly, but since nothing was known of this brother's wife, we have no basis for getting at the cause of this case. These facts are recapitulated, and given in tabular form herewith.

Case		Wasser-mann		
*Ch.A.	†M.A.	Results	Syphilis in History	Group
24	6	P.	Father, Mother, Sister	Hereditary
9	4	P.	Father's Brother	Hereditary
11	3	P.	F. Father-F. Mother	Meningitis
19	2	P.	Mother's Relatives	Neuropathic
15	2	P.	Father	Hereditary
17	10	N.	Father	Hereditary
25	8	N.	Father	Hereditary
30	8	N.	Father	Neuropathic
24	8	N.	Paternal Aunt	No Cause
13	6	N.	Father	Hereditary
14	6	N.	Father	Hereditary
17	6	N.	Father	Neuropathic
21	4	N.	Father	Hereditary
40	3	N.	Mother's Brother	Hereditary
17	9	P.	None	Hereditary
68	6	P.	None	Unclassified
21	4	P.	None	Mongolian
19	4	P.	None	Mongolian
21	3	P.	None	Hereditary
26	3	P.	None	Hereditary
12	2	P.	None	Hereditary
24	2	P.	None	Accident
14	2	P.	None	Hereditary
21	2	P.	None	Meningitis
24	2	P.	None	Accident
27	2	P.	None	Neuropathic
16	1	P.	None	Neuropathic
15	1	P.	None	Meningitis
21	1	P.	None	Hereditary

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*Ch.A.—Chronological Age.
†M.A.—Mental Age.

The difficulty of proving that the syphilis in the parents has caused the feeble-mindedness in the children in these cases is obvious. Every one of these cases of feeble-mindedness is accounted for on some other basis than syphilis, which is at least equally as good as the hypothesis of syphilis, and in most cases vastly more probable. Of the 14 cases, 5 positives and 9 negatives, showing a history of syphilis in the family, all but 5 are clearly cases of hereditary feeble-mindedness.

If one were inclined to deny the hypothesis of hereditary feeble-mindedness, and claim that such families might be all syphilitic, one is confronted by the fact that in a large percentage of these cases, there are normal as well as feeble-minded children born to the same parents. Indeed this is a most puzzling fact in a number of cases of known syphilitic parents, that is to say, some of their children are normal while others are feeble-minded.

If syphilis is a cause of feeble-mindedness, how shall we account for syphilitic parents having any normal children? We recognize, of course, that there is undoubtedly much more syphilis in these families than our records show, and the fifteen positives where no syphilis is found in the family undoubtedly had syphilitic parents, although we could not get this history. We are compelled to confine our discussion to those cases where the history is known.

I shall now show you some charts, illustrating the foregoing conditions and facts.

First, the five positive cases in which there is no syphilis in the family.

Second, some of the negative cases with a history of syphilis in the family. It will be noted that of the 67 cases under discussion where there is no history of syphilis in the family, there are only fifteen positives among our children. Since only one of these fifteen showed evidence of having direct infection, we must assume that it was hereditary syphilis in 14 of these cases, therefore that these 14 cases should, had we been able to get the history, have shown syphilis somewhere in the family. But this is only 14 out of 66 cases.

In conclusion, it would seem that of the cases under consideration, all of the feeble-mindedness is accounted for on an hypothesis equally good and for the most part vastly better than the hypothesis that syphilis is a cause. Furthermore, is not the a priori argument valid in this case. If syphilis is a cause of feeble-mindedness, and if syphilis is as prevalent as it is believed to be, can we escape the conviction that the percentage of feeble-minded people would be enormously increased over our present estimate? Indeed, can you gentlemen not furnish from your patients more instances of parents who are syphilitic but had normal children than of defective children resulting from such cases? So far as it is evident from this study, it would seem that syphilis causes general paralysis, death in infancy, miscarriage, physical deformities and abnormalities, but not feeble-mindedness. In other words, it is too powerful a poison to merely maim the offspring. It kills.

Discussion.

Dr. William T. Shanahan, Sonyea: Inasmuch as the hour is so late, there are but one or two points to which I wish to refer at this time. In 700 Wassermann tests made at the Craig Colony on epileptics of all ages, the number of positive reactions obtained was less than 3 per cent, many of these reactions being one or two plus, few four plus. In the large German Institution at Bielefeld, in 800 Wassermann tests, made on a similar group of epileptics, the percentage of positives was likewise small. Among the epileptics seen in the special institutions for this class, the majority are more or less defective mentally, so to be considered under this general discussion as would be the ordinary feeble-minded.

While it would seem unnecessary to think of such a possibility, nevertheless, the question of the date of infection in the parents should be ascertained definitely in each instance, if such is possible, for the reason that some physicians apparently jump at the conclusion, because the parent has had a specific infection that the offspring must naturally have been subject to a similar infection, when if inquiry had been made, it would be found that the infection in the parent had been acquired subsequent to the birth of the patient and not before.

HEREDITARY SYPHILIS—THE EARLY MANIFESTATIONS; FROM INTRAUTERINE LIFE TO ONE YEAR OF AGE.*

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CONGENITAL syphilis is not easy to diagnose. To the syphilographer or pediatrician its detection is not difficult, but to many others it does not seem a simple proposition. I accept this because very many cases seen in consultation have been variously diagnosed. Two conditions comprise over ninety per cent of these mistaken or delayed diagnoses: malnutrition and bronchitis. These tardy diagnoses are due largely to the narrow view that we are accustomed to give the disease.

The importance of the diagnosis and control of congenital syphilis can hardly be overestimated because the patient sometimes represents a group of individuals needing treatment, and it becomes a social as well as a medical problem. The waste in potential life through miscarriages and early death, disability through visceral damage and the occasional occurrence of disordered mentality, all traceable to the disease, makes its prompt recognition and control a medical and social necessity.

Types of Disease.—Ordinarily we think of congenital syphilis only as it shows in a more or less virulent infection in the offspring. But, on the other hand, there may be the hereditary transmission of constitutional changes which are the result of the specific poison in the parent or more distant progenitor. The manifestations of these changes in the offspring are in more or less marked general disturbances which are not traceable to other sources. If we consider only the first type of cases we are taking a very narrow view. In this type we study changes which are brought about through the influence of the direct hereditary transmission of germs. In the other type we are not of necessity dealing with that situation, but with a constitutional transmission which is resulting in the various anomalies as stated. These are dependent upon and connected with the destructive effect of the disease upon the general health and condition of the parents. In other words, we frequently see infants exhibiting tissue changes which are attributable to syphilitic infection, but without any evidence of the usual syphilitic lesions.

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Call these manifestations parasyphilitic, dystrophic or toxinic, they are the result of a syphilitic heredity.

So much has been laid at the door of syphilis that the very variety of the dystrophies might be used as an argument against their syphilitic origin, but we must remember the polymorphism of syphilitic manifestations. Cannot these also be due to alcohol and tuberculosis? There is abundant evidence that tuberculosis often and alcohol occasionally produce dystrophies. Neither is evidence lacking that sepsis and enteric poisons may produce similar results. So this question we cannot answer satisfactorily. But the dystrophies of syphilis are special in that they are varied and numerous.

The ordinary manifestations of syphilis are due to the action of the virus upon organs or tissues whose development is sufficient to sustain life, or in other words, whose development is beyond the embryonic stage and has entered the epoch of growth and functioning. Therefore, it is possible that both ordinary morbid changes and dystrophies may exist at the same time in one infant. In syphilis acquired late in pregnancy the dystrophies are usually absent. The dystrophies are the results of the action of the poison upon forming organs and tissues.

Diagnosis.—Several factors must be considered in the diagnosis: the family history, the type of the disease, the appearance of the infant at birth, and the appearance of symptoms some time after birth.

The Family History is most important and yet difficult to obtain, unless the examiner has a clearcut idea of what he should elicit and has the ability to do it skilfully. Because of the attitude which the laity assumes, the question, "Had any of the family ever any syphilis?" should never be asked. A denial means nothing, and by placing the questioned one upon guard it detracts from the honesty and value of subsequent answers to other questions. It is better and more certain to obtain a history of events which will establish strong presumptive evidence as to the existence of the disease. The several events to be considered are these:

(*a*) The tendency of the children of a given family to suffer from unaccountable anemias and malnutrition during the earlier periods of life despite the fact that the hygienic surroundings and the dietetic care are both excellent.

(*b*) The occurrence of anomalous types of disease in two or more children of the same family, or the unusual course of a disease under similar circumstances.

(*c*) Tardy development without a recognized cause, or occurring as the result of a recognized etiology, but out of all proportion to that cause and occurring in two or more children of the same family.

(*d*) The occurrence of a rachitic type of skull without the other evidences of rachitis being proportionately marked.

(*e*) History of the disease, direct or presumptive, in one or both parents.

(*f*) A history of the abortive habit in the mother without definite cause.

The death of the fetus may occur at any period of intrauterine life. The most common occurrence of the event is between the fourth and seventh month. In those pregnancies which are terminated early (first five months) the fetus may show no evidences of the disease which are clearly demonstrable. During the last four months of pregnancy, if the fetus is expelled, the evidences of the disease are usually unmistakable.

The gross appearance of the specific placenta is usually as follows: it is larger and heavier than normal and its lobes are deformed. It is pale and often yellowish in hue, with a much thickened and hardened cord.

The high fatality in congenital syphilis is due to visceral changes which are compatible with intrauterine life but are unfavorable to extrauterine existence.

The rapid death of the infant may be the only evidence of congenital syphilis. These cases are commonly diagnosed as acute malnutrition. In other instances a trivial cause is sufficient to destroy the balance which is dependent upon and reduced by antenatal visceral changes and which under the changed circumstances of birth becomes destroyed.

Probably many infants die during the first weeks of life from "bronchitis" which is in reality syphilis of the lungs.

The explanation of the delayed manifestations is probably found in the fact that extrauterine conditions are so vastly different from intrauterine; the latter favoring visceral changes, the former favoring cutaneous and respiratory ones.

Between the birth and the time of active symptoms there is no test that is pathognomonic of congenital syphilis. Valuable as it is at other periods, the Wassermann reaction is at least unreliable during the first weeks of infancy. The Noguchi test has a negative value but considered from the positive standpoint, the leutin test is affected very materially by the administration of mercury, and is thereby rendered uncertain for positive results. The Lange gold chloride reaction on the cerebro-spinal fluid occupies much the same position as the Noguchi test; both need more investigation, so that sufficient evidence may be gathered to establish their relative and real importance. We might dismiss as unimportant the examination of the urine and cerebro-spinal fluid for cells and globulin content.

I realize that the tendency is strongly toward accepting the laboratory findings as against the clinical evidences, and that this attitude is particularly true when the findings prove negative, but there is some danger in this, because during the first weeks of life before the occurrence of an exanthem, syphilitic infants commonly show no signs of the disease serologically, or cytologically, and in some instances, even clinically. It is essential to make a reasonable diagnosis even before a Wassermann is attempted. The quantity of blood required for the test is small, but its withdrawal, coupled with the lowered resistance of the subject, places a strain upon the already weakened organism that is not always sustained. This is emphasized further by the fact that syphilitic infants are always anemic and sometimes to a dangerous degree.

Symptoms.—The appearance of the infant at birth will depend upon several factors—virulence of the infection and the stage at which the infant is born. The infant may be born without giving any evidence of the disease, and it is only after a period of careful watching that we are enabled to detect evidences of the infection. If there is a premature birth the usual evidences of such immaturity are more or less marked. The dusky color which many of these infants have is due to the general vascular tone being defective. Rarely we see the birth of a premature infant with well-marked evidences of the disease in the skin and mucous membrane. Symptoms present at birth indicate the severity of the infection, and such infants usually live but a few days. The shriveled appearance is due to the lack of fatty tissue in the body. The skin lesions are more or less tense bullæ set upon a deep red base or surrounded with a dark or brownish red ring. These bullæ contain serum, blood or pus. In much smaller numbers are seen less tense bullæ, which dry rapidly into areas of a dusky red hue, and upon which the epidermis lies in a brown crust. Frequently the epidermis slips from these areas, leaving moist and denuded surfaces.

Symptoms Some Time After Birth.—The most prominent is a persistent rhinitis. It occurs as an early symptom, and for a long time may remain the single prominent evidence of the disease. It varies in degree from a slight stuffiness of the nose without visible discharge, to a condition in which there is a profuse blood-stained discharge continually flowing from the nostrils and interfering seriously with respiration and the act of nursing. But whatever its degree, it is persistent. We recall no instance in which this symptom was absent, although its evidences in some few instances have been but slight. During the first few days of life we can commonly demonstrate a swelling of the nasal mucous membrane, particularly that of the inferior turbinate bone, and this occurs without any definite etiology.

Apart from this involvement of the nasal mucous membrane there is usually no other involvement of the mucous surfaces, except at the regions about the openings of the body, and at these situations fissures may appear. These fissures radiate outward from the mucous surface, and are often deep enough to cause permanent scars.

The peculiar eruptions on the skin usually appear soon after the rhinitis, and remain a prominent feature of the disease. The most common type of skin lesion is an eruption in the form of the flat, disclike, reddened areas, which later change to a brownish tinge. These may be described variously as erythematous, papular, vesicular, macular, or pustular, but this division is confusing and unnecessary, because the essential feature of the eruption is the flat, disclike, circumscribed character with its peculiar color. A difference in the intensity of the inflammation accounts for the difference in the descriptions of the character of the lesion. The tendency to coalesce is not marked. On the soles and the palms, which are favorite sites for the eruption, the lesions are seen as smooth, shiny, dark red or brown areas, and perhaps an occasional bulla. There is variation in intensity and distribution, and this has led to the description of almost innumerable forms of eruption. The main point is to have a clear idea of the main features of the eruption of congenital syphilis, and this is of value only as it is associated with other clinical features or a history which will warrant us in making a diagnosis.

After several months it is not unusual to find that the hair becomes very much thinned out, and this may occur to such an extent that but little is left. The falling out begins generally over the vertex, giving the infant the weird appearance of still retaining a thicker fringe of hair about the sides of the head.

The nails are usually involved, and ordinarily show suppuration about the matrix, with subsequent nail destruction. But preceding this there may be a simple arching of the dorsum of the nail.

Splenic enlargement is quite common. However, as this is a common accompaniment of many conditions in infancy, its value as evidence is lessened.

Not commonly there may be hoarseness or aphonia, which indicates some involvement of the mucous membrane about the larynx.

Upon the nervous system the disease frequently shows very early and marked effects, seriously affecting normal development. The secondary symptoms which are dependent upon this involvement of the infant's nervous system are of course varied and innumerable.

Orchitis may occur, and the enlargement of the testes may be considerable (two or three times the normal size), without tenderness. Occurring in early infancy this symptom is almost pathognomonic.

Most characteristic of all of the eye conditions is an interstitial keratitis.

Anemia is always present, and may be very profound, but it is a common experience to find this symptom persistent but moderate in degree until many of the other manifestations of the disease have cleared up, and then it is not unusual for the anemia to be evidenced in its most acute form.

The affections of the bones may be divided into two groups: those which accompany the early manifestations and those which accompany the later ones.

Acute epiphysitis is the most common accompaniment of the early manifestations. The onset is almost always very acute, so that usually the first thing noted is that the infant is unable to move the limb. As a consequence two types of motor disturbance may be noticed: the paralytic and the spastic. It is of interest to recall that in specific bone disease of the arms there is flaccidity, while in the lower limbs there is contracture or spasticity. With widespread involvement we may have crepitation. The danger of mistaking such an occurrence for sudden paralysis is great. The slightest motion causes intense pain. This symptom, when it occurs, is almost invariably present during the first six weeks. It is not long before some swelling is noticed at about the epiphyseal line, being very prominent in superficially placed bone, but less so in a deeper situated one. Usually there is a decided limitation to the swelling to the end of the bone, but in a rare and extreme case it may involve much more of the limb. Neglected, this may go on to suppuration.

The changes in the skull may be manifested in several ways: the usual form is that of a gummatous periostitis. These gummata are half-spherical, limited swellings, which are more or less painful. At first they appear to be solid, but later there is a somewhat distinct fluctuation felt, and at the same time they become more or less adherent to the skin.

Dactylitis is not so common as epiphysitis. Eusiform swelling of the proximal phalanx is the usual lesion.

The teeth are erupted late, show early decay and will be considered by another reader, as will the later bone and eye lesions.

Hemorrhagic effusions in all situations are common, so that under the influence of prolonged or difficult labor, intracranial or subpericranial effusions occur.

An irregular type of temperature is common to congenital syphilis. Often the superficial lymphatic glands are palpable, but the enlargements show no distinctive features. However, this adenitis is more apt to occur as a late manifestation than an early one.

Prognosis.—It must be remembered that congenital syphilis is a much more fatal disease than the acquired form of adults. Malnutrition is the common cause of death, the vitality of the child being so markedly affected that the occurrence of some slight intercurrent disease often determines the issue. The earlier the symptoms appear, the worse the prognosis. Even allowing that the infection is mild and the treatment adequate, syphilitic infants usually do not develop normally, and, therefore, even at its best, the prognosis must be guarded as to the future physical and mental vigor of the child.

THE ROLE OF THE SUPERIOR MESENTERIC VESSELS IN ABDOMINAL DISEASE.*

By J. N. HALL, M.D.,
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THESE vessels, supplying a most important portion of the digestive tract, play a leading part in such a variety of conditions as to deserve special study from the internist as well as the surgeon.

Different phases of their action in producing abdominal disturbances have been studied by many different authors. I shall attempt to give a résumé which shall briefly cover the important portions of the entire subject. The conditions which concern us will be considered under the following headings:

1. Anomalies.
2. Aneurism.
3. Hemorrhage.
4. Arteriosclerosis.
5. Intestinal infarction. (*a*) Arterial embolism; (*b*) Arterial thrombosis; (*c*) Thrombophlebitis.
6. Acute dilatation of the stomach from gastromesenteric ileus.

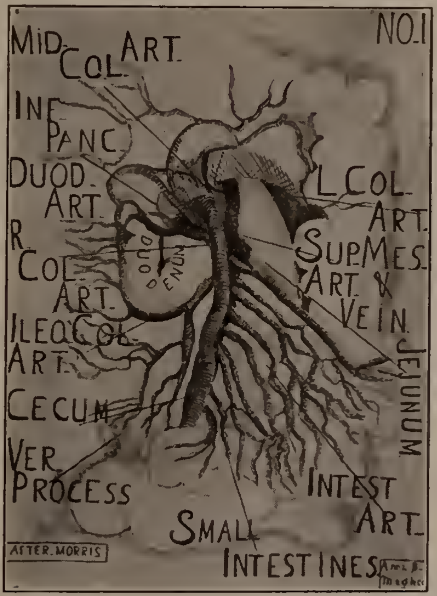

FIG. 1—RELATION OF SUPERIOR MESENTERIC VESSELS. (MORRIS.)

7. Chronic dilatation of the stomach and duodenum from gastromesenteric ileus.

Anatomy.—In the accompanying figure from

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Morris (Fig. 1) it may be noted that the superior mesenteric artery, arising from the aorta just below the point of origin of the celiac artery, crosses anteriorly over the inferior portion of the mesentery "in which it runs from left to right in the form of a curve with its convexity to the left, to the cecum. Its vein lies to the right side above, having previously crossed obliquely in front of the artery from left to right." Through its numerous branches it supplies by a series of primary and secondary loops, the entire length of the small intestine, the mesentery with its glands, the cecum and the appendix, and the ascending and transverse portions of the colon. The abundant anastomoses deserve mention. The still freer anastomoses of the inferior mesenteric circulation, notably the connection between the inferior mesenteric vein and the vena cava through the hemorrhoidal veins, render the dangers of thrombosis and embolism in this territory less serious than in that which we are to consider. The frequency of vascular lesions affecting the small as contrasted with those affecting the large bowel is thus explained.

The superior mesenteric vein drains the territory supplied by the corresponding artery, and, uniting with the splenic vein, forms the portal trunk. It is well to note that this vein carries the return circulation from those Balkan States of the abdomen—the appendix and cecum, and that many of its diseases originate in the septic processes so frequently found in this territory. The opportunity for thrombosis and septic invasion is further emphasized by the fact that the right gastro-epiploic vein, draining the greater curve of the stomach, and the pancreatico-duodenal veins, supplying a region frequently involved in the digestive diseases, empty into the superior mesenteric vein before it joins with the splenic vein to form the vena portæ.

1. *Anomalies.*—These possess interest chiefly for the anatomist, since they do not often affect the symptomatology or treatment of the conditions we study.

In the rare cases of Treitz's hernia, of different varieties, the superior mesenteric artery, its continuation, the ileo-colic, or the left colic artery, may bound the neck of the sac, and may in their anomalous relations with other parts be subject to injury in attempting to incise the neck of the sac (see Fig. 2). In Haberer's case the inferior mesenteric vein was thrombosed at the time of operation, and we may readily believe that under some circumstances a similar accident might befall the superior mesenteric vein, since practically the entire small bowel may be within the sac, as in one case I saw with Dr. Leonard Freeman. We saw, in fact, at a post-mortem examination upon another subject, the coincidence of thrombosis of the vena cava and the superior mesenteric vein, due to hepatic cirrhosis, with a left duodenal hernia containing all but six inches of the small bowel. Yet this hernia was a mere accidental complication and apparently played no part in the pathology of the case.

Primrose has reported a case in which a retroperitoneal hernia was due to an aberrant middle colic artery, arising from the right common iliac artery and carrying the blood flow from below upward.

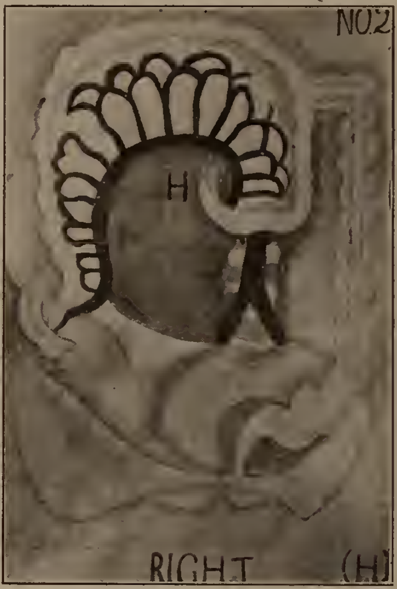

Fig. 2—Relation of Artery in Treitz's Hernia (After Moynihan).

The superior mesenteric vessels may assist in bringing about a partial obstruction of the jejunum in a most unusual way. In a recent case in which I was unable to make any closer diagnosis than that of some type of partial duodenal stenosis, the findings, as described by Dr. Freeman, were as follows:

"The duodenum ran directly downward, beneath the transverse mesocolon, then turning to the left it passed under the superior mesenteric vessels, well below the mesocolon, and appeared upon the left aspect of the mesentery of the small bowel. A strong band of connective tissue from the mesentery dragged a loop of the first portion of the jejunum upward to a point just above the place of emergence of the duodenum in such a manner as to sharply kink the bowel. Above this kink the duodenum was dilated, as was also the stomach to a moderate degree. The pyloric opening was unusually large."

2. *Aneurism.*—This affection is rare in the vessel under consideration. In Crisp's 501 cases of aneurism, the superior mesenteric artery was not once affected, while the abdominal aorta presented 59 instances of the disease. In Gifford's case, the aneurism ruptured into the lesser peritoneal cavity, and overflowed into the greater peritoneum, causing death from hemorrhage. Since the diagnosis from a similar disease of the aorta, celiac artery or splenic artery is practically

impossible excepting on opening the abdomen, and since treatment would depend, in this event, upon the character of the aneurism rather than its anatomical location, we shall dismiss the subject.

3. *Hemorrhage.*—The bleeding from rupture of aneurism has been mentioned. Hemorrhage is not infrequent from traumatic causes, being doubtless chiefly arterial. Moynihan quotes from Schmidt's Jahrbuch a fatal case of perforation of the vein by a duodenal ulcer.

4. *Arteriosclerosis.*—The very great frequency of syphilitic aortitis, and the frequent involvement of the superior mesenteric and other arteries of the abdomen, are well recognized. Ordinary arteriosclerosis of the superior mesenteric artery is rare when contrasted with the frequency of the affection in the splenic artery and the arteries of the heart, the brain, and the limbs.

We stand upon much less secure ground in discussing the symptoms due to such arterial disease. We may be certain that thrombosis is definitely favored in such vessels, and this will be discussed in another section. Pal advances very plausible reasons for the belief that, in those of arteriosclerotic age, painful abdominal affections may well be due to spasm of the gastric and mesenteric vessels, and it is believed by many clinicians that angina abdominis is definitely due to such spasms. Pal describes certain abdominal vascular crises without pain, although this symptom is commonly the most prominent feature. We may readily believe that an intermittent claudication may exist in these vessels, subject as they are to great and frequent variations in their flow.

Ortner speaks of the great clinical importance of mesenteric arteriosclerosis, especially mentioning as characteristic of such a condition, colic with alternating diarrhea and constipation. Schnitzler recognizes a definite angiosclerotic dysperistalsis. The atonic relaxation of the bowel with cessation of peristalsis under experimental use of adrenalin, as described by Pal, is extremely suggestive, and lends probability to some of the theories advanced. The "violent tonic spasm of the intestine which follows sudden occlusion of the superior mesenteric artery" is mentioned by Welch. It is very probable that angiospasm plays an important part in the causation of the symptoms of the tabetic crisis.

So numerous are the possible sources of abdominal pain, however, that we must at present, regard arteriosclerosis and its supposedly associated angiospasm as plausible rather than demonstrated causes of the conditions mentioned. It is certainly reasonable to assume, in a case of so-called angina abdominis, that the supposed arterial affection should be treated by means similar to those which afford relief in angina pectoris.

In all these matters we stand upon theoretical foundations. It may not be entirely advantageous for one to see always the definite anatomical alterations shown daily in every good clinic where digestive diseases come to the operating table, for it tends to make one, abdominally speaking a gross materialist, and damages that power of imagination which should save one from believing that only coarse anatomical lesions can possibly cause digestive disease. The truth doubtless lies between the two positions. Firmly as I believe in the definite anatomical lesion as the usual cause of serious digestive disease, I do not doubt that pathological physiology plays an important role in this field. The instant relief occasionally seen in tabetic crises from the inhalation of amyl nitrite should cause the most skeptical to admit that angiospasm is a definite factor in abdominal affections.

As to the veins, we recognize dilatation with sclerosis, and even the presence of large calcified venous sacs in hepatic cirrhosis. These lesions are probably of more importance in predisposing toward thrombosis under favoring conditions than through direct influence on the circulation.

5. Intestinal infarction: About twice as many cases occur in men as in women, generally in middle life. Zezas reports a case of venous thrombosis in a baby of one month.

Boinet divides intestinal infarction into three classes as follows:

(1) Hemorrhagic infarction: (*a*) By arterial embolism. (*b*) By thrombophlebitis.

(2) Anemic infarction with gangrene by obliteration of the main mesenteric branches above the anastomosing loops. Hemorrhagic infiltration is absent.

(3) Limited and curable infarction, due to blocking of the small or medium-sized branches.

If the emboli are benign a condition comparable to infarction of the spleen or other viscera results, and recovery may well occur. Oppolzer apparently made the first diagnosis in the living subject. Trotter, in 366 cases, found that 64 per cent had hemorrhagic infarction of the bowel, and only 2.7 per cent anemic infarction. Peritonitis was present in 28 per cent.

We shall consider the subject under the following headings:

Arterial Embolism.—The artery is probably often blocked by embolus in cases in which the supervening thrombosis attracts the chief attention. Gallavardin found in his series of cases that embolism was approximately three times as frequent as arterial thrombosis. The source of the embolus is commonly either the interior of the heart, through an endocarditic process, or the aorta, due to atheromatous degeneration. The large embolus coming from the left auricle in advanced mitral disease, which is occasionally the cause of blocking of the bifurcation of the aorta, as in one of my cases, could scarcely enter the superior mesenteric artery. In Welch's case the source was a thrombus in the pulmonary veins in gangrene of the lung. Although a primary thrombosis is less frequent than embolism, secondary thrombosis plays a very important part in the embolic cases. In 61 per cent of Jackson, Porter and Quimby's 197 cases the obstruction was definitely arterial—in 39 per cent venous. When not secondary to embolism, arterial thrombosis commonly results either from bacterial invasion from some infective process in the intestinal tract, or from a local luetic endarteritis.

Thrombophlebitis.—This is primary, as in certain cachetic states, or more commonly secondary, occurring as an infective thrombophlebitis, as described so well by Adami. It is a common finding in cases of pylephlebitis, in cirrhosis of the liver, in visceral syphilis and, as a sequence of the cessation of circulation following arterial embolism. Chabrol reports one case during typhoid fever. In torsion of the mesentery, thrombosis is likely to occur. In a case of appendicitis operated by Dr. W. B. Craig, the whole of the transverse colon was twisted upon itself, and we found extensive venous thrombosis in the mesentery. In one of La Place's cases the escape of the pancreatic juice after damage to the pancreas led him to suspect that the mesentery, bathed in this secretion, might have been so damaged thereby as to favor the thrombosis which was found.

In the severer cases the main venous trunk is involved, but the smaller branches only are occasionally found thrombosed upon opening the abdomen in grave infectious types of abdominal disease.

In one of my cases in which Dr. Freeman resected 36 inches of the small bowel, the thrombosis followed a severe food intoxication, caused by eating white fish "embalmed" with formaldehyde. Similar cases following food poisoning have been reported.

Delatour mentions one case following splenectomy for simple hypertrophy, the thrombotic process evidently extending from the splenic vein to the superior mesenteric. In another case he infers, with good reason, that the mesentery had been damaged in a hernia either by the strangulation or by the necessary manipulation. Eight months later he found at operation, done on account of the partial obstruction and consequent extreme malnutrition, a narrowing of the ileum over a distance of two feet, the portion of the intestine above being much dilated. Recovery followed resection, and the specimen showed several scars with resulting stricture. These cicatrices apparently resulted from thrombotic ulceration. Many indurated mesenteric glands were also present. Arneill and Buchtel, in the Denver City Hospital, found very extensive mesenteric thrombosis, with gangrene of the bowel, in a woman of 60. It had followed the strangulation of a femoral hernia, treated by vigorous catharsis by an untrained nurse. Fecal vomiting and intense pain were the most notable symptoms, though the former apparently appertained to the hernia rather than the vascular occlusion.

In the case of a girl of 16, operated at the Denver City Hospital by Dr. C. B. Lyman, the main symptoms were sharp, cramp-like pains in the epigastrium, and vomiting, gradually increasing in severity for a week. The patient assumed the left lateral position with knees drawn up. Marked tenderness and rigidity existed over the whole lower abdomen. White count, 56,000. At operation a mass felt in the left pelvic region proved to be a section of the ileum, with several small gangrenous spots averaging about one centimeter in diameter. One of these spots had perforated. Resection of 14 inches of the bowel was done. Dr. Helen Craig found at the post-mortem numerous areas of necrosis, with thrombosis of the vessels within the wall of the bowel. It is of great interest to note that perforation had taken place in several of these areas after the occurrence of the original perforation which had enforced operation (Figs. 3 and 4).

In the case of a woman, mentioned by Delatour, two years after operation for pelvic abscess there were found six strictures of the small intestine, apparently the result of ulceration following septic thrombosis or embolism. Recovery followed resection.

Symptoms of Intestinal Infarction.—The different varieties are scarcely to be differentiated clinically. A sudden development of symptoms should lead to the diagnosis of embolism in case a source of origin of the embolus could be found.

Jackson, Porter and Quimby found the symptoms to be acute in a majority of cases, although a chronic course was not very infrequent. In

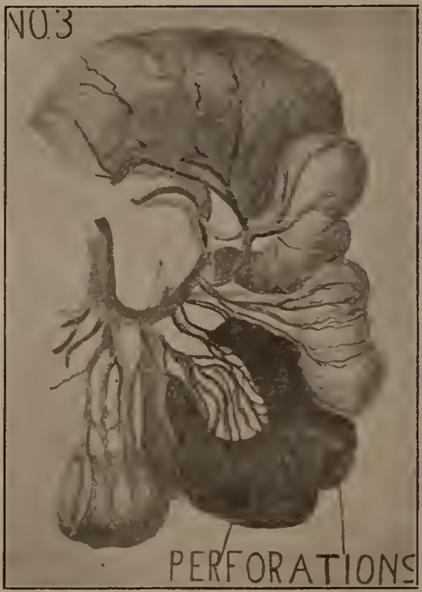

Fig. 3—Thrombosis Gangrene and Perforations. Case of Dr. C. B. Lyman.

seven cases the duration was over two months. In such cases an intermittent course suggests the establishment of a sufficient collateral circulation for a time, with relapse and further progress at intervals. One of Schnitzler's cases lived six months. It is to be assumed that in chronic cases the small veins near the intestine are involved.

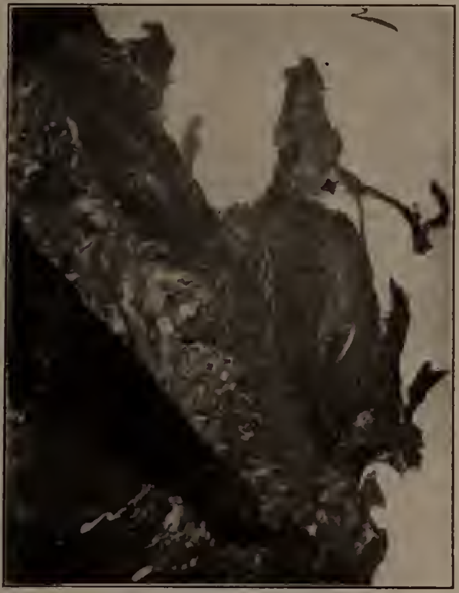

Fig. 4—Thrombosis of Two Arteries in Area of Necrosis. (See Fig. 3.)

The most frequent syndrome is one suggesting acute obstruction of the bowels, with colicky pain in 96 per cent of the cases, nausea and vomiting in most instances, and in 19 per cent bloody diarrhea, not explicable by local disease of the bowel, nor by portal obstruction. Intussusception is naturally suggested by this symptom. There was some blood in the stools at some time in 41 per cent of the cases reported. Vomiting of blood is very much less frequent. Little dependence is to be placed upon the temperature, as fever is frequently absent. In one of my cases, seen in collapse, and not operated, copious hematemesis and melena were present. With the history of chronic digestive disease and the presence of pain, with marked tenderness and rigidity in the abdomen, the provisional diagnosis of duodenal ulcer was made. Autopsy showed only thrombosis of the vena cava and the superior mesenteric vein, associated with a fairly developed cirrhosis of the liver.

In one case reported to me by Dr. James Rae Arneill, an extremely severe paroxysmal pain in the lower back was a notable symptom, persisting for two weeks. Morphia in a dose of ¾ of a grain gave but moderate alleviation. The patient spent hours in the knee-chest position, seeming to obtain slight relief thereby. Vomiting, finally bloody and eventually fecal in character, led to operation by Dr. A. H. Williams. A section of ileum six inches in length was found gangrenous from mesenteric thrombosis, and a fatal result soon followed.

The assumption of the knee-chest position is especially interesting to me since in one of my cases a woman obtained relief in a totally different condition in the same manner. I refer to the pinching of an inflamed appendix in a peritoneal pouch, from which it was withdrawn by Dr. Freeman at operation, with permanent relief.

Low temperature, rapid pulse, localized or generalized pain in the abdomen, tenderness, rigidity, distension, and occasionally the palpation of a tumor caused by the swollen and engorged mesentery, virtually an immense hematoma, are further features of the affection (Fig. 5). Thevenot and Rey report three cases in which rapid tumefaction of the infarcted mesentery was the main or the only feature. A marked leucocytis is commonly present. Necrosis may give rise to perforative peritonitis, as in the case quoted above, and fluid or gas may distend the peritoneal cavity. According to Talke, purpuric eruptions are not unusual.

Murphy and Brooks throw some light upon the cause of the rapid course of certain cases in their report of recent experimental work. They conclude that, "1—Animals with obstructed segment of bowel in which there is a disturbance in the blood supply, develop symptoms more rapidly and die in much shorter time than animals with obstructed segments of bowel in which there is no nutritional disturbance." "2—The fluid accumulating in segments of bowel with vascular disturbance, especially arterial obstruction, is very toxic in a period of less than 24 hours."

In certain cases of general peritonitis, as in acute appendicitis, small thrombi may be noted in the branches of the vein, with the dull red

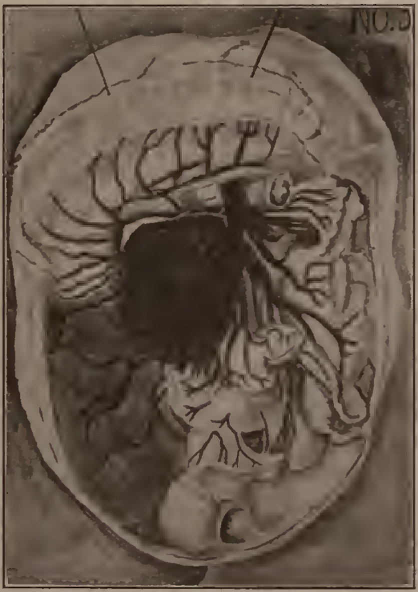

Fig. 5—Hematoma of Mesentery. (Moynihan.)

color associated with the obstructed circulation, and yet recovery may result, as in a case recently operated by Dr. J. W. Harris.

Gerhardt speaks of the possibility of embolic manifestations elsewhere—of great significance as to the diagnosis when present.

Schrötter states that the diagnosis of arterial from venous obstruction is practically impossible excepting in the very acute embolic cases. The diagnosis from portal thrombosis cannot be made since this is so commonly only an earlier manifestation of the general thrombotic process. The enlargement of the spleen speaks for portal as against superior mesenteric thrombosis. La Place states that the fact that the bowels may practically always be moved by purgatives, while valuable in diagnosis, really damages the patient's chances of recovery since it leads to delay in making the true diagnosis.

I have elsewhere recapitulated the diagnostic points as follows: *"Obstruction from mesenteric thrombosis is characterized by a slow development, with lack of sharp symptomatology. In the absence of features of other types of obstruction, and in the presence of signs of hepatic cirrhosis, syphilis, arteriosclerosis, source of possible embolism or thrombosis, with bloody vomitus or stools, involvement of the mesenteric vessels should be considered."

Tumors of the mesentery, and occasionally the glands distributed through it in tabes mesenterica, interfere with the circulation, and may cause venous thrombosis. In a recent case successfully operated by Dr. Charles Jaeger, we found scattered dilatations in the course of the small intestine, apparently due to atonic relaxation from interference with the vascular supply through pressure of the tuberculous glands upon the branches of the superior mesenteric vessels, although no thrombosis nor embolism was made out. Chronic partial obstruction was present, as is frequently the case in this affection. Volvulus affecting a mesenteric cyst produces the symptoms of vascular obstruction, but the diagnosis is not likely to be made before operation. In a case of very large mesenteric cyst recently operated by Dr. Freeman, we found no signs of interference with the blood supply, and fortunately this is the rule.

Treatment.—Our only hope of bettering the gloomy statistics of the affection lies in earlier diagnosis and intervention. In but 13 of Trotter's 366 cases was the diagnosis made before operation or autopsy. We should bear in mind that obstruction without any localizing or definite diagnostic sign speaks in general for some type of obstipation secondary to interference with the circulation of the gut, as from thrombosis or cancer of the mesentery. If, in these cases, we act upon the principle that whenever we are in doubt as to the diagnosis of intestinal obstruction, we should advise operation before serious symptoms occur, we shall save a considerable number of these cases which otherwise would die. The exact diagnosis is less important than a working diagnosis followed by exploration.

A fatal result occurs in 94 per cent of cases of extensive involvement, within three days in one-half the cases unless early surgical intervention saves the day. But four out of 47 operated cases quoted by the above named authors survived, but over 36 per cent of Trotter's series. Fortunately, there is a steadily increasing probability of early diagnosis and of timely and skillful surgical intervention, so that the statistics should gradually improve.

Increasing experience would lead us to suppose that Watson's statement that but 1/6 of the cases are suitable for resection, erred on the side of conservatism. Practically all cases with gangrene of the bowel are fatal. Because of the reported instances of thrombosis following manipulation of the mesentery in hernia and other conditions it is obvious that this organ must be handled with especial respect.

6. *Acute Dilatation of the Stomach.*—We shall deal only with the type of case believed to originate from pressure upon the duodenum, where it crosses the second and third lumbar vertebrae, by the superior mesenteric vessels contained in the root of the mesentery. In certain cases the empty small bowel has been found in the pelvis post-mortem, its mesentery acting in the manner mentioned. Müller states that this is a particularly common finding after the removal of large ovarian or fibroid tumors. Albrecht has shown that the duodenum is normally flattened at this point from the pressure of the mesentery and the vessels. In Baumler's case such a constriction existed, with a well-defined and corresponding necrosis of the bowel.

Without further consideration of the exact causation of such acute gastromesenteric ileus, we may speak of the symptoms, for they at least raise a presumption of the existence of pressure by the vessels as described. There are continuous vomiting, pain, collapse, anuria, great thirst and constipation. The vomitus is brownish, from capillary hemorrhage and from the bile which enters the stomach because of the blocking below its point of entrance into the duodenum. Although foul in odor, it is not fecal in character. Inspection, palpation and percussion serve to reveal the dilated stomach, which may practically fill the abdomen. The withdrawal of large quantities of fluid with but little evidence of food remnants, and with simultaneous disappearance in part at least of the distension and of the symptoms, verifies the diagnosis.

Acute dilatation of the stomach is not difficult of diagnosis if it be only considered. Its extreme importance should lead every one to take it into consideration in any case, medical or surgical, of protracted vomiting, for the trouble occurs equally well in acute diseases as after an anesthetic and an abdominal operation.

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* Hall—"Intestinal Obstruction," A. J. M. S., Nov., 1910.

As to treatment, I shall only suggest the almost startling efficacy in certain cases of turning the patient into the lateral prone position as is now commonly practiced. Thus I saw in one week, at two different hospitals, and with different surgeons, two cases of acute dilatation, apparently going on toward death, relieved within an hour by postural treatment, with eventual recovery in both cases. I mention this mode of treatment especially because it seems to emphasize in these cases the part which the vessels we consider may take in the production of the affection.

7. Chronic dilatation of the stomach and duodenum from gastromesenteric ileus.

The duodenum may be constricted by an arteriomesenteric fold in such a way as to produce chronic dilatation of the portion above the constriction and to some extent of the stomach. Out of 262 cases of duodenal stenosis, Anders states that twenty-nine were due to compression by the root of the mesentery. Melchior does not believe that sagging down of the viscera is the cause, but the evidence in favor of this view is very convincing. Thus Bloodgood says, "The mesentery of the portion of the ileum near the cecum is short, and one can demonstrate at the operation the pull of the cecum on the mesentery of the small intestine, a straight pull producing more or less constriction of the duodenum by the mesenteric vessels at the root of the mesentery." If the mesentery of the ileum is long, this cannot occur. The great distension of the duodenum, with a less degree in the case of the stomach, seems to bear out the statement of Draper, that the mechanical type of dilatation in the digestive tract occurs only near the point of obstruction, dilatation above this point arising from chemical changes in the contents.

In Salomon's case the obstruction was definitely intermittent, the prolapsing intestine being contained in a hernial sac. Spence and Graham speak of the fact that months of freedom from symptoms may occur between the attacks. The patients may never suffer if they stay in the recumbent posture.

The chief symptom of chronic gastromesenteric ileus is vomiting, and when no obvious cause for such emesis is to be found the condition mentioned demands consideration.

Vomiting may recur several times daily. The vomitus is often green in color from admixture of bile. Cramp-like pain or distress over the duodenal region is frequent. Scanty urine and constipation are noted, as in pyloric stenosis. The dilatation of the stomach is more likely to be moderate in degree than very extensive. Spence and Graham believe the diagnosis may often be made by a consideration of the features mentioned, but lay especial stress upon the distension of the upper abdomen and the flattening below. Such obstruction may occur in infancy and even demand differentiation from congenital pyloric stenosis. Thus Frank reports in a recent volume of the *Zeitschrift fur Kinderheilkunde,* the case of a female of eleven months in which chronic arteriomesenteric obstruction existed. He lays especial stress upon the dilatation of the stomach and duodenum, the two being separable by the constriction at the site of the pylorus, as seen through the abdominal wall. The presence of abundant bile in the vomitus, the notable borborygmi and the appearance of symptoms in the fifth month, rather than at birth led him to exclude congenital pyloric stenosis. Recovery followed a duodeno-jujenostomy, the diagnosis being fully established.

The diagnosis may be confirmed in many cases by the quick cessation of the vomiting upon the assumption of the knee-chest position, giving the sagging intestines an opportunity to relax their pull upon the mesentery and its vessels, as in the acute form of the affection.

I have seen several cases of marked chronic dilatation of the upper portion of the duodenum in connection with narrowing below from the pressure of the superior mesenteric vessels, but my diagnosis in these cases has generally been that of pyloric or duodenal ulcer. I am not satisfied that closer accuracy is often possible. One such obstruction was corrected by the performance of a duodeno-duodenostomy by Dr. Freeman. The exact diagnosis is less important than a realization that a mechanical type of duodenal obstruction exists, and demands surgical relief.

Bloodgood has had good results from resection of the right half of the colon with a portion of the ileum, or from ileo-colostomy. The exact method of relief concerns the surgeon rather than the internist. The statement of Spence and Graham that possibly the cyclic vomiting of children and the so-called hysterical vomiting, may at times be due to chronic gastromesenteric ileus, deserves our closest attention.

Similar obstruction may occur below the duodenum, as in the following case operated by Dr. Freeman: A man of thirty-three, had a gastro-enterostomy performed for duodenal ulcer four years before and a sharp attack of appendicitis two months before my examination. He had nausea, vomiting, almost fecal in character and amounting to several pints on one occasion. The bowels had not moved for eighty-four hours. Pulse 60. Temperature 100. He had obtained some relief by lying on his abdomen. There were present slight rigidity and tenderness to the left of the navel, with some distension in this region. Under my diagnosis of partial obstruction in the middle portion of the small bowel he was operated. Several feet of the upper small intestine were much distended, while below a point at which the ileum was compressed under the root of the mesentery and the superior mesenteric vessels the gut was empty. The bowel was practically uninjured.

The anastomotic opening was patent; the induration about the duodenal ulcer had disappeared and everything in this connection seemed entirely normal. The appendix was removed, the adhesions separated, the patient instructed to lie in the right prone position, and a normal convalescence followed.

In another case I once saw sudden obstipation and definite fecal vomiting relieved within an hour by assuming the abdominal position. Nothing seems so reasonable as an explanation as the condition we have mentioned. The fortunate recovery of the patient without operation precludes a more certain diagnosis.

I venture to hope that this brief consideration of the affections of the superior mesenteric vessels may serve to help us to keep in mind the possibility of their participation in the symptomatology of obscure abdominal affections.

THE RESPONSIBILITY OF THE PHYSICIAN IN ORAL INFECTIONS.*

By W. H. HASKIN, M.D., F.A.C.S.,

NEW YORK CITY.

IN 1908 I wrote a paper which was entitled, "Some Interesting Cases of Diseases of the Alveolar Processes," published in the December number of the *Annals of Otology, Rhinology and Laryngology*. After relating a number of cases of different conditions, I said: "The foregoing cases only serve to illustrate the condition of many thousands of patients seen by us but not recognized, our attention not being called to what the patient believes to be a condition belonging in the province of dentistry. Unfortunately, there are very few dentists, in the great numbers of those licensed to practice, who are qualified, either by experience or through their college education, to recognize the nature of these cases or the seriousness of allowing them to run on indefinitely. There are, alas, too many who will persist in treating these conditions through the minute root canals. As Professor of Oral Surgery in the New York College of Oral and Dental Surgery, I saw a great many cases of these fistulous tracts, and in all cases of long standing advised the free opening of the alveolus and the removal of all carious bone wherever found, either with or without the extraction of the teeth, that depending upon the condition of the bone immediately surrounding the teeth. Often it will be found that only one root is involved and that this can be amputated thus saving the tooth but curing the septic tract. It is absurd to say that it is best to treat these cases through the root canals, when one has once seen the extensive destruction of the bone that will be found in all long-standing cases, and we should urge that surgical measures be used in all cases where there has been a so-called gumboil which fails to heal and leaves a fistulous tract, however small the opening may be, for they are in reality cases of suppurative alveolitis, which have opened through the external alveolar plates only after actual destruction of bone."

In that paper the use of the small film for taking the individual teeth by means of the radiograph was advised and several were shown.

In another paper in 1912, I said, "It has been most discouraging in the years gone by to awaken any interest among medical men to the great importance of these conditions," and also said, "that the utter indifference of most medical men to the presence of so many septic foci, which can be so readily found, is almost beyond belief and the only excuse possible is that they are ignorant of the teeth and jaws and cannot reason out the connections between these local and general conditions in consequence."

When we consider the entire neglect of any instruction on these lines in our medical colleges it is not to be wondered at.

It is most gratifying to see the profession waking up at last for there is a grave necessity for it, if we are to accomplish any good. I wish to say here that there is a most remarkable awakening in the dental profession and that we owe a great debt to a group of men in that profession who are doing splendid research work and giving their results unstintedly to the world. Unfortunately they are in the great minority and my remarks quoted above still hold good for the great majority of dentists, so that we must learn ourselves just what does constitute good dental work.

We must realize that most all of the conditions with which we have to deal in our adult patients can be traced directly back to infancy, so that, in order to make our fight, it is necessary that we understand something about the influence of the teeth and their development upon the whole system.

Although at birth no teeth are visible, still there are normally twenty-six tooth germs present in each jaw and calcification is well under way in the deciduous teeth. As each tooth develops from its crown toward its root it pushes its way outward occlusially, the development in the upper jaw being always downward, forward and outward; and in the lower, upward, forward and outward. In normal development the lower teeth should lie just within the upper jaw with the lower molars occluding slightly in front of the upper molars. With this occlusion it will be seen that every effort of nature tends to spread the upper jaw and to push forward the lower at the same time.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 27, 1915.

As the teeth grow and erupt it is necessary for them to be held in place, hence the alveolar processes enlarge and a great deal depends upon the completeness of their growth both in size and in density. They are merely temporary structures which disappear entirely when all the teeth are lost. They can be likened to the muscles in that they need exercise if they are to develop. Unless the proper amount of exercise is given not only will the teeth be slow in developing and be structurally weak when erupted but their supporting alveoli will be insufficient, either to guide the teeth into their proper positions or to hold them securely after eruption. Early malocclusion is invariably followed by early loosening of the teeth from the efforts of mastication alone.

As the growth of all tissue depends upon the amount of stimulation it receives, so does the development of the teeth and the alveoli depend upon stimulation, this being brought through three great forces. The first is the stimulation caused by the muscular efforts made at nursing and the pressure of the gum margins against the nipple; the second is the great traction and pushing effort made by the tongue both in motion and when in repose providing that the child is not a mouth breather. In a normal mouth as soon as it is closed we swallow and unconsciously produce a vacuum in the mouth which causes the tongue to cling to the roof of the mouth and spread out laterally and forward against the teeth, The lower jaw then drops slightly, being held up by the action of the tongue which thus tends to pull down the roof of the mouth and increase the height of the nasal cavity and also exerts a continued pressure outward and forward on all the teeth, helping nature in her efforts. Third, the tremendous stimulation of both teeth and alveoli made in mastication should be understood, for it is inestimable in its value.

Probably every medical man tells his patients to eat slowly and to masticate thoroughly in order to aid digestion. Undoubtedly that is necessary, but during childhood sufficient mastication is absolutely necessary if we are to hope for strong teeth and jaws.

The observations of Dr. A. Hrdlicka of the Smithsonian Institute, after studying 960 Apache and Pima Indian children for comparative anthropology, is certainly most interesting. He says:

First—There was no abnormal narrowing of the maxillary arch nor protrusion of incisors, and no irregularities, except sporadically a little crowding of the incisors, and that the arches are broader in the second temporary molar region than in the case of whites of the same type of skull, with the bones generally heavier.

Second—That in all his personal experience he never saw a case of adenoids nor knew of a tonsilitis in an Indian child, although he made careful observations of the breathing of the children, both awake and while asleep.

Third—(Note particularly.) The Indians have had, and still have, the habit of keeping up the nursing of the child until the second or third year, or even later; and the important fact was developed that the Indian mother gave her child various things to chew very early, while she still continued nursing late; here we have the double value of use and a natural sterile and easily digested food, supplemented by early more or less solid foods.

Fourth—When asked if open-air sleeping did not prevent adenoid vegetations among the Indians, he quoted many facts to show that often the Indian (the Pima for instance) slept under the worst possible ventilation; the mud hut is often completely closed by blankets against air, and many sleep in one room.

Fifth—He accentuated again his idea that evolution was going on in the human skull, face bones, base of skull, and teeth, and that it is largely due, so far as the jaws, teeth, and facial bones are concerned, to lack of use of the organs of mastication. This tendency to degeneracy, due to disuse and the still advancing evolution, must be recognized as an important factor in all of our considerations.

His observations surely point to the importance of the mother's breast feeding. Much research work is demonstrating the fact that cow's milk or any other artificial feeding of infants can never give the infant that something, be it thyroid, thymus, pineal or other internal glandular secretion, that insures a normal development of bony tissues.

The question raised by the internal gland secretion is a most interesting and important one upon which a great deal is becoming known, but time will not permit us to more than mention it here.

At about the sixth year the four most important of all the teeth erupt as molars. They are the first of the permanent teeth and on them falls the burden of developing and holding the jaws in their proper place during the shedding of the deciduous molars and canines and the eruption of the permanent bicuspids and canines, during which time the greatest downward and forward development of both upper and lower jaws takes place.

One cannot emphasize too strongly the necessity of watching these teeth from the time of eruption. As outlined, above, in these days, owing to lack of stimulation and proper food, our teeth are very apt to be structurally weak at eruption and begin to decay at a very early age owing to the softness, so called, of the teeth. This condition can undoubtedly be overcome if the proper stimulation be given to the teeth or jaws early in life, by regular daily and systematic exercises of chewing on rubber blocks.

Too little attention is paid to the deciduous teeth, as the great majority of dentists do not understand the importance of preserving them intact in the jaws until the normal time has come for them to be shed. The series of slides will show very clearly how rapidly shifting of the teeth takes place and how such shifting must necessarily interfere with the normal eruption of the permanent teeth.

Case I—During the winter I was compelled to operate upon a child for both mastoids and am firmly convinced that her infection was directly traceable to the jaws. Five weeks previously her dentist had told her parents that three roots of deciduous teeth would come out of themselves, although she had had two gumboils over them, leaving fistulous tracts. Two weeks later she had an attack of ulcerative stomatitis which lasted about ten days and was followed by double tonsilitis, suppuration in the left ear and mastoiditis which had developed into a subperiosteal abscess when she was brought to me. The same day the mastoid was opened, the roots were extracted, a large alveolar abscess was opened, the deciduous molar tooth under the abscess was extracted and an enormous adenoid was removed. Patient did very well and was sent home on the tenth day but on the fourteenth day the right ear became involved and went on to mastoid operation in spite of early treatment. Had this child's jaw received proper care, we can hardly doubt that she would have been spared the subsequent suffering.

The above brief outline of the importance of early development must serve, only to stir you to a deeper study of these conditions which you must understand in order to get a true appreciation of the many factors entering into so much of the alveolar conditions.

Without dental caries it is exceedingly rare to have any inflammation of the dental pulp without which you very rarely if ever have apical abscesses.

These, however, do exist in countless numbers as can be demonstrated by means of the radiograph, if no fistulous opening can be found leading to them. The dangers of these septic foci cannot be too strongly emphasized, for the toxemias resulting from them are most insidious and far reaching, no part of the body being exempt apparently from attack.

The lowering of the general vitality is perhaps the most serious factor that has to be considered as it makes the individual just so much the more susceptible to infections of other kinds. We cannot take up the bacteriology in detail, but it is rather suggestive to study the reports of the research works of the University of Minnesota and of Dr. E. C. Rosenow and note how large a percentage of these apical abscess conditions give pure cultures of the streptococcus viridans, this being the organism that causes ulcerative endocarditis, gastric ulcer and various rheumatic joint infections.

The slides and specimens speak for themselves as to the actual bone disease that exists in these cases and yet it is extremely hard to convince both doctor and dentist and also the patients themselves that there is any danger because so often there is no pain or even sensitiveness.

Pyorrhoea or Rigg's disease is receiving great and deserving notoriety in all our journals these days and undoubtedly great good will come out of it in the end, but do not be led into any false hopes by the great number of cures reported from one source or another. The latest theory put forth is that the poor endamoeba is the sole cause and he is being pursued relentlessly with emetin and ipecac. I wish to state here most emphatically that no advanced case of pyorrhoea has ever been or ever will be cured by emetin or any other drug, either with or without scaling of the teeth, for the reason that when the pericementum has once been separated from the cementum of the tooth it can never re-adhere and consequently there will always remain an area of dead cementum which will foster growth of bacteria for the rest of time or as long as that tooth remains in the jaw. Whether it is wise to retain such teeth in the head must depend entirely on the actual extent and location of the exposed cemental surface and upon the treatment which the patient will undergo at regular short intervals. There is only one successful method of handling these cases and that is to prevent the disease ever getting started and in order to do this we must understand the true underlying causes as outlined above.

Failure to properly cleanse the teeth daily results in mucin plaque deposits in which the saliva deposits salts, these forming tartar. These deposits irritate the gingival borders which become swollen and bleed easily. It gradually causes a recession of the gums and extends up along the teeth, separating the pericementum even to the apices of the teeth and causing inflammation of the adjoining alveolar tissues, with actual destruction of the bone itself in advanced cases, as is shown in the specimens. The secretions that pour out of these areas contain bacteria of every kind and of late active endamoebae have been found in all cases and much of the destructive process is claimed to be the result of their activities. Drs. Barrett and Smith, of Philadelphia, and Drs. Bass and Johns, of New Orleans, claim wonderful results from the use of emetin and also ipecac in removing the endamoebae and curing cases, but as said before, do not be led astray by any false hopes, by this or any other method of treatment unless the case has begun treatment at a very early stage and then is kept under frequent observation to prevent any advance or recurrence.

Closely crowded and irregular teeth are almost impossible to cleanse and hence are very liable to early attacks from that alone but added to the difficulty of cleansing is the fact that bad occlusion will always bring wrong forces to bear on the teeth and they are consequently loosened in their sockets at an early age thus increasing the probability of early pyorrhoea.

To return again to early influence the failure to properly stimulate the jaws and teeth during the formative stage results in soft or structurally weak teeth which decay very early and rapidly and necessitate resort to fillings.

With the many scientific and skillful dentists that we have who are fighting a tremendous uphill battle against great odds the following statements I am sure will meet with unqualified approval for there is no doubt but that many of the most serious conditions that we see so frequently are the result of bad dental work and the patients would have been much better off had the dental work not been done.

Improperly prepared cavities, badly contoured fillings, failure to secure proper occlusion and proximal contracts, failure to properly prepare and fill root canals and pulp chambers, placing crowns on live teeth over the enamel and leaving the edges of the crowns free from the surface of the teeth so that secretions and food are bound to collect under them, putting pivot teeth on dead septic roots and thus locking up sepsis are some of the conditions to be found in almost every mouth. In my own experience I have yet to see a piece of fixed bridgework that could be called sanitary and was not a menace to the patient. This may appear to be a rather rash statement but it is nevertheless true.

Case II—I would like to illustrate this by citing a recent case that came into my hands of which I will show the radiographs and the teeth removed. The patient was a policeman and had suffered for seven months with the most severe iridocyclitis I had ever seen. Wassermann was negative, habits excellent and urine normal. His eye surgeon, Dr. Wooton had sent him to his dentist at the beginning of his eye trouble and two bridges had been placed in his mouth, but his eye condition grew steadily worse and a bad prognosis was given. When sent to me he was a most pitiful sight. I found all four anchor teeth of the bridges discharging pus under the gold caps and pus also around a crowned canine. Both lower canines had some pyorrhoeal infection.

The radiographs confirmed my diagnosis and Dr. Ream removed the five teeth and I scaled and cleaned all remaining teeth. The effect was most marvelous. All pain in the eyes ceased within twenty-four hours. At the end of ten days the eyes had regained a normal appearance except for a small adhesion of the left iris and the fundus was rapidly clearing. On the eighteenth day he was returned to duty. This brief outline can give no idea of what happened when the septic foci in the jaws were cleaned up but shows what can happen when such bridgework is placed in one's mouth.

Case III—Perhaps a second case may prove interesting as it illustrates another condition frequently found. An old patient called me to see her for a most profuse rhinorrhoea and complete nasal stoppage of both nares. Her distress was intense and the condition an entirely new one from any that I had seen during eighteen years of attendance. Her blood pressure was found to be 240 and her attending physician was called. He could find nothing to account for her condition, her digestive organs, urine, etc., being negative and so sent for me again. This patient was most unfortunate in early childhood and had suffered with extensive necrosis of both jaws which left decided deformity. Most ingenious bridges had been worn for years, although I had fought against them many times and advised removal because of the advanced pyorrhoea extending to the apices. Each time she went to her dentist he invariably refused to take them off and after a few treatments which could not be thorough because of the presence of the bridgework, would tell her she was all right.

With this attack she finally consented to be radiographed and became convinced of the condition that existed. The bridges were removed and the teeth treated until pus disappeared and with this the nasal distress disappeared and the blood pressure gradually dropped to 160. Although I had urged removal of several teeth because of the advanced pericemental stripping and the alveolar destruction caused by the pyorrhoea, I was distressed, indeed, to have her call on me recently to show off her *new* fixed bridgework made by another well-known dentist. With this woman's life-long history and condition it was nothing more nor less than a crime to put such devices in her head.

Case IV—J. S., age seventy-three, a very wealthy man from Pittsburgh was brought to me for a sore throat. He had just been operated upon for a boil and was decidedly septic in appearance. His mouth was in a horrible condition with two removable plates clasped around four or five teeth that were so loose from pyorrhoea they could be pulled out with the fingers. The upper plate had a gold ring soldered on it that cut into the jaw and was supposed to fit around the remains of a root which I have here. The upper jaw appeared to be affected by an extensive sarcoma, although it may have been entirely inflammatory with necrosis.

He was greatly surprised when told of his condition and said that he went to his dentist (the leading one of Pittsburgh) every month to have his plates tightened. I saw him but once as he returned to his home that day.

Case V—Mrs. A. H. F., forty-five years, came to me in November, 1914, for a severe spasmodic cough which had persisted for several months and tuberculosis was suspected but several sputum examinations were negative. She suffered constantly with rheumatism and neuritis. She had very marked hypertrophy of the lingual tonsils. I found two blackened remains of molars in the lower jaw, one on either side, which were loosened and tender. Her dentist was preparing them to place an extensive bridge across the jaw to carry seven teeth. I had X-ray films taken and found the apices of both badly involved and the teeth at such an angle from shifting that it would have been most inadvisable to use them as bridge supports even though not diseased, and so extracted them much to the disgust of the dentist. A few applications of silver nitrate solution were made to the lingual tonsils and the patient has lost her cough and reports that her general condition has improved wonderfully and that her rheumatism and neuritis have disappeared.

Case VI—A. S., male, thirty-nine years, was sent to me by Dr. T., who had extracted the right central upper incisor for an abscess but with no relief.

The man had suffered for several months with pain, swelling and recurrent discharge. X-ray showed the lateral to be involved and badly eroded at the middle of the root. I extracted this and found the pulp canal exposed with the nerve intact. The two sockets were curetted and patient rapidly recovered.

Case VII—Dr. J. A. P., thirty years, came to me in January, 1915, for profuse discharge from his right antrums. He had been at Saranac for two years for tuberculosis and within a year had had his right inferior turbinate removed and the mucous membrane of the septrum and floor curetted for tubercular condition. He had never known what it meant to be free from nasal discharge. The antrum was treated through its normal opening with cultures of lactic acid bacilli and then with dilute Lugol's solution. Radiographs showed very serious involvement of several teeth and they were removed and are presented for examination. The molars had been filled, eighteen years before and the root canals were full of cotton which was extremely offensive.

He reports that he has never known before what it meant to really feel well. His antrum is dry, he is rapidly gaining weight and has lost his feeling of general fatigue entirely. How much the long standing conditions of his teeth had to do with his tubercular conditions is, of course, hard to say, but I feel convinced that the septic intoxication must have been responsible for it in large part at least.

Case VIII—R. W., twenty-four years, was referred to me by Dr. W., of Grand Rapids, Mich., in November, 1914. Nine years ago tonsils had been removed very successfully, but he has continued to have pain and apparently sore throat ever since on the left side. He had always been very irritable and suffered with nervous indigestion. I found an impacted lower third molar partially emptied extending out into the cheek and with a deep pocket under the fold of membrane. This tooth was removed and gave instant relief and a recent letter of grateful thanks for his relief told of a continued gain in health and spirits.

Case IX—Mrs. B. P. M., twenty-nine years, sent by Dr. P. in October, 1914, for a large painful mass on right upper jaw over lateral incisor. She wore a fixed bridge from left central to right lateral incisor and the left canine was very painful being crowned. The X-ray films disclose the quality of the dental work, the caps all projecting from the surface of the teeth and the peg in the right lateral incisor projecting through the side of the root.

The mass was fluctuating and proved to be a large cyst. Four teeth were removed and the cavity thoroughly curetted under local anesthesia. Healing took place rapidly and her dentist then attached another fixed bridge in spite of my advice to the contrary. After being worn about six weeks this had to be removed and a plate was made which has proved to be very comfortable and is far more sanitary.

Case X—Miss F. C., fifteen years, was referred to me by Dr. S., of Columbia, Pa. The girl was in boarding school here and had had several colds. She had lost her voice for about ten days. I felt at once that this loss was hysterical as no effort was made to speak above a quiet whisper. She appeared to be pale, her appetite was poor and she was reported to be mentally depressed. Her tonsils and adenoids had been thoroughly removed two years previously. Careful examination of the nose and throat showed membranes to be very healthy and vocal chords white. On examining her jaws, I found both upper sixth year molars to be in had condition and very painful on pressure over the roots. The radiograph proved them both to be badly filled and with infection at the apices. Dr. Gunn kindly removed the fillings and very offensive gas and secretion escaped from both. On the following day the school reported that her voice had returned which bore out the hysterical diagnosis. With her teeth cured she will soon regain her health.

These few cases have been selected from many others to illustrate a few of the results of bad dental work that we must constantly look for and understand if we are to help in the regeneration of the practice of dentistry. The importance of that profession is growing more and more each year and the future dental training will soon be far wider in its scope. In the meanwhile we have got to contend with the conditions as they exist today and strive to overcome the grave dangers that will always result from poor dental work.

Discussion.

Dr. W. Sohier Bryant, New York City: Dr. Haskins has given us a very interesting and instructive paper. Unfortunately the time allotted prevented him from more than touching this supremely important and all pervasive topic.

The feet support the general system, I might say the general system depends on the teeth. General development depends on the teeth. It has been shown experimentally on young animals that the extraction of all the teeth on one side results in retarded skeletal development of that side as a whole compared to the opposite side. The viscera also on the experimented side develop imperfectly compared to the normal side. The brain is especially affected.

From an artistic and aesthetic point of view, the teeth are important, since distortion of the face is due to malposition of the teeth. Observe the adenoid face, the prognathous or retreating chin, hatchet face, etc.

The teeth have an important influence on the personality, moral and psychic character of the individual. The strong or firm jaw, rightly associated with firmness of character is founded on perfect dental occlusion. The fixation of the jaw in perfect occlusion is necessary to provide a firm mechanical support for the psychical foundation of a firm will.

The teeth are very important for proper digestion. Improperly masticated food is a frequent cause of digestive disturbances. For proper mastication, perfect dental occlusion is a necessity and much more important than prolonged mastication.

The teeth often furnish the focus for local and general infection, bactecemia and anaphylaxis. The suppurating pockets of Riggs' disease or pyorrhœa alveolaris, and apical abscess which are found at the tip of the roots of the teeth are the important sources of serious infections. The small size and hidden position of the infected foci often require a sciagram for their detection owing to the absence of any local symptoms whatever.

The results of these insidious infections of the teeth are exfoliation of the teeth, alveolar abscess, alveolar ostitis, suppurating sinuses, metastatic anaphylactic conditions as sterile inflammations of sinus and sinovial membranes, hay fever, bronchial asthma, sterile arthritis and ostitis and septecemia. The metastatic inflammations include infection of the sinus membranes and sinovial surfaces, kidney, heart, bone and bactecemia.

A case in point, an active man, forty-five years old, an alveolar abscess, treated by the dentist, apparently cured. Two weeks later the man became prostrated with septic symptoms. Grew weaker with high septic temperature, sallow skin and coated tongue. Physical examination, negative throughout. Patient goes from bad to worse, condition appears hopeless, no diagnosis other than septecemia.

Then the appearance of the tooth in the mouth, observed by a consultant, elicits the history of the alveolar abscess. The removal of the offending tooth removes the focus of the trouble and slow convalescence follows. There was found a very small streptococcic apical abscess on the root of the tooth.

Dr. Thomas S. Southworth, New York City: Although such prolonged nursing as has been mentioned may have certain advantages among aboriginal tribes it is usually followed by bad results and under-nutrition in civilization. Malnutrition in early life leaves its mark frequently upon the bony structures and the teeth. This is also true of acute illness where there is loss of weight or prolonged stationary weight.

Artificial feeding is a more common factor than normal maternal nursing. Properly balanced nutrition of the child at all times is most important. Carbohydrate or starchy food should be made from the whole grains which are not robbed of their mineral salts. All organs develop best with use, and the use of the jaws and teeth should be encouraged by giving crusts or dry bread to chew. Infants should not be fed too long exclusively upon soft, sloppy food. The pediatrician has so long opposed the sucking of thumbs, rubber comforters and toys, that Dr. Haskins proposal to teach the chewing of rubber blocks comes as something of a surprise. I trust that he will elaborate the method more fully in his closing remarks. Prevention of decay in the first teeth and six-year-old molars is of great importance. A little while ago I was inclined to look upon orthodental work upon the deciduous teeth as a fad, but I now realize that the earlier jaw deformities are corrected the better.

Dr. A. L. Benedict, Buffalo: For the sake of brevity, I shall limit my discussion mainly to personal hobbies, following Dr. Haskins' precedent.

In an experience of about 300 exhumations of Indian skeletons in this region, either personally and manually made or with assistance, or following the excavations made by others, no cases have been noted in which pyorrhoea could be diagnosed from the teeth and jaws. As the teeth are usually incomplete, not only from loss during life but from accidental loosening after 200-500 years of burial, accurate statistic observations have been impossible, but one may safely affirm that the effects of attrition and of fracture from use of teeth for other purposes than mastication, are much more marked among Indians than among the present population. Contrary to the popular impression, dental caries was by no means rare among the Indians of the transition period of European influence of the seventeenth and eighteenth centuries and of the prehistoric period which cannot be dated except by inference as to the length of time required for decay of bones. As to this point, it may be stated that in fairly dry, sandy and loamy soils, osseous decay of adult skeletons is scarcely begun in instances in which contemporary history allows us to date the burial to the latter part of the seventeenth century and some of the prehistoric interments probably date back at least 500 years. Allowing for the preservative influence of dentistry, we may state confidently that the Indians were less liable to dental caries than civilized man of the present, but that it was not at all rare—at least one distinctly advanced carious tooth being found in nearly every Indian skull. In one instance, a supernumerary incisor or canine—the type being intermediate—was found projecting antero-posteriorly through the anterior palatine canal. It could certainly have been felt through the gum during life, if it did not erupt. There was no evidence of a pathologic condition beyond the anomaly. In one case, that of a young Indian girl buried about 1680, there was an abnormally high arch of the palate. Otherwise, I do not remember having observed this condition.

In passing, a word of caution may be thrown out regarding observation as to deviations of the nasal septum and similar conditions of delicate bones observed in skulls long buried. The distortion produced by the entrance of dirt and pebbles, alternate soaking and drying in shallow graves, and final prolonged drying in museums, is such as to throw considerable doubt on conclusions as to the original shape and position of any delicate bony structure. This criticism does not, of course, apply to firm and solid bones and teeth.

It should be noted that prolonged lactation was characteristic of most primitive peoples, all over the world. In the case of the American Indians, a very good reason existed, which did not apply to the old world. While, of course, there was a large number of mammals in America, there was absolutely no indigenous mammal available as a source of milk, so that for infant and invalid feeding and the very important economic and dietetic values of the various milk products, there was an absolute blank in America until after the discovery by Columbus.

The other hobby to which allusion will be made is this: changes in diet, introduction of cooking and the gradual tendency toward foods requiring less and less mastication, have unquestionably tended toward failure of development of the jaws and teeth. This may explain to a large degree the phonetic decay of language, especially noted in the vowels and particularly in Greek and English. Without attempting to enter into details, it may be said that, generally speaking, vowel decay has been in the direction of higher pitch, corresponding to diminution in the resonant chamber of the mouth.

In conclusion, I wish to emphasize the great value of Dr. Haskins' paper. It calls attention to the necessity of co-operation between the medical and dental professions, both as to the solution of general problems by joint research and as to the joint care of the individual case. It is not sufficient that the physician should look at the teeth and say "You ought to go to a dentist," nor that the dentist should advise consulting a physician. It would not suffice to require a medical degree for dental practice and this is scarcely desirable. Even if the dentist had the preliminary medical course, he would lack the judgment and knowledge which only daily routine experience can maintain. What I mean, is that many oral conditions and especially pyorrhoea, if the present theory of the sole responsibility of the entamoeba blows over, require systematic, joint attendance and research, both from the medical and the dental standpoint.

EPENDYMITIS—REPORT OF A SUB-ACUTE CASE CURED BY LUMBAR PUNCTURE.*

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and

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IT is our purpose in this paper to report a single, but an interesting and unusual case of ependymitis. We have used the term "ependymitis" after Delafield, but do not wish to present any argument for its general acceptance in preference to other synonymous terms. However, to designate the syndrome of a disease by one of its more or less prominent symptoms or pathologic sequelæ—the custom commonly followed—is not scientific, to say the least, and should not be done. In the case to be reported herewith the ophthalmologist usually would have described it as optic neuritis, papillœdema; or choked disc; the internest, as internal hydrocephalus or serous meningitis; the surgeon, as aseptic meningitis or non-obstructive hydrocephalus. In view of some of the recent experiments of Dr. Frazier and his colleagues probably a better title for our paper would be "Acute non-obstructive hydrocephalus."

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Case history.—Boy, aged 11 years; family history negative. Personal history: was nursed first two months; then fed malted milk; has had pertusis, mumps, varicella, and measles; weighed eighty pounds during October last; active boy; had an operation for adenoids and tonsils on July 31st; started at school September 1st; about September 15th began to have headaches on returning from school; these kept up about two out of three days until November 6th; on Friday, November 6th, went to school in A. M., returned at noon complaining of very severe headache, vomited and slept some that afternoon; slept fore part of night, no fever; bowels constipated; during night awoke with headache and was in bed on Saturday with some headache but no vomiting; Sunday somewhat better; on Monday, Tuesday, and Wednesday vomited, and headache was bad; some fever (height unknown); there was some photophobia and hyperæsthesia; gradually recovered and was up, but not at school; about two weeks from the onset of the more severe symptoms, November 20th, consulted Dr. Snell on account of his eyes; three days later patient was admitted to the General Hospital.

Ocular history and examination: A year previous to the present trouble this boy was examined by the ophthalmologist (A. C. S.) and at this time all fundus structures were found to be perfectly healthy and normal, muscles in good balance, and only a low amount of simple hypermetropia.

On November 20, 1914, he consulted the ophthalmologist again. At this time he complained of "double vision." On cross-examination in regard to this "double vision" it was found that objects were divided or split into two parts or were distorted. In addition, he complained of severe headaches which were of several weeks standing.

The ophthalmoscopic examination on this date showed the following: pupils active to light and equal in size; media clear; both the arteries and the veins exceedingly tortuous, even their smallest terminal branches; veins dilated at least twice their normal diameter; disc edges obliterated and swollen + 1 to + 2D.; the adjacent retina œdematous; no hemorrhage; vision 20/20. Both eyes were very similar in every way. There was no alteration from normal in the fields of vision, and there was perfect muscle rotation in all directions.

On November 23d the boy was admitted to the Rochester General Hospital. On this date there was discovered for the first time in the fundus of the right eye a small flame-shaped hemorrhage at the nasal edge of the disc, partly on the disc and extending into the retina. On November 24th there was an additional hemorrhage at the lower edge of the right disc, adjacent to the inferior retinal artery. On this date there appeared for the first time a small hemorrhage on the left disc up and in. The swelling of both discs appeared to be the same as on the first examination. On November 26th (this was the morning following the lumbar puncture) the swelling of the left optic disc had completely disappeared. Arteries and veins were still tortuous, but were less so by a considerable degree than on the previous examinations. The right eye, as well, showed considerable improvement in regard to the swelling and the tortuosity of vessels. On the twenty-ninth of November the hemorrhage in the left eye had completely disappeared and the fundus was practically normal in appearance. The larger arteries and veins had resumed their normal straight course and their normal size. The smaller and terminal branches were still slightly tortuous. In the right eye there remained a small, apparently pin-head sized hemorrhage on the disc near its lower edge. Veins and arteries were still slightly tortuous, but the swelling of the disc had completely disappeared. Under homatropine the refraction was plus seventy-five spherical in each eye; and vision 20/20 in each eye.

On December 4th, the hemorrhage on right disc was very faint and minute.

On December 10th the following was noted: O. D. no hemorrhages visible; inner edge of disc clear, outer edge slightly hazy and indistinct; small terminal arteries and veins tortuous; O. S. disc edges clear and normal in appearance; a slight tortuosity of retinal vessels in their peripheral extremities.

On December 21st, continued improvement but terminal veins tortuous. Reports that he has had a headache, the only one since November 23d.

Physical and laboratory examination: Physical examination negative, except condition of eyes, slight staggering when he attempted to walk a crack; hyperæsthetic skin, and rather exaggerated kneejerks. There was no rigidity of neck; no Koenigs, Babinski or Brudzeuski signs. X-ray of skull was negative. The von Pirquet was negative. Haem. 90 per cent, red cells 4,700,000, whites 10,200. Cerebrospinal fluid was found to be under considerable pressure and presented a faint yellow tinge .25 cc. of fluid was withdrawn. It contained about 10 cells to the cu. m.m. Globulin reaction was faintly marked. Wassermann of blood and spinal fluid was negative for both.

You will observe that the ocular picture in this case was a very typical one of papillœdema with swelling of disc of less than + 2D. This oedematous swelling completely disappeared within eighteen hours following the lumbar puncture. At the same time all symptoms disappeared permanently. The lumbar puncture was undertaken as a diagnostic measure but it proved of very important therapeutic value.

In making a review of the etiology of similar cases I find that there is a long list of conditions which have been reported to be the exciting cause of papillœdema. In addition to the chief pathological cause, that of brain tumor, which is responsible for the largest percentage of cases, there are a number of other causes which in order of their frequency might be tabulated—Syphilis, tuberculosis, brain abscess, meningitis, hydrocephalus, anæmia, nephritis, sinus thrombosis, cysticercus, mumps, influenza, typhoid, otetis, ethmoiditis, antrum and sinus disease, metastasis, hypotonus, violent emotion and fatigue. The cases of meningitis may be subdivided into tubercular, epidemic cerebro-spinal, specific, otogenous, purulent, meningitis of fevers, such as: typhoid, pneumonia, influenza, scarlet fever, measles and erysipelas. There are in addition a considerable portion of cases which are regarded as idiopathic. There has also been some attempt to classify papillœdema in accordance with the amount of swelling, whether it is more than plus 2D. or less than plus 2D.

Even after very careful study both clinically and in the laboratory we are compelled to place our case among the idiopathic.

To repeat—the diagnosis of ependymitis was made—1. Because the symptoms were those described by Dr. Delafield for this condition.

2. Because the eye conditions evidently were caused by pressure of the fluid as the subsequent improvement after tapping proved.

3. Because tubercular meningitis was ruled out thus:

a. Patient lived.
b. Cell count too low.
c. No tubercular bacilli found.
d. Negative von Pirquet.

4. Because syphilis was ruled out thus:

a. Negative Wassermann on blood and spinal fluid.

b. No evidence or clinical history of it.

5. Because there was no evidence or clinical history of any of the acute exanthemata, or of typhoid fever (no Widal was done however).

The point of particular interest in this case lies in the fact that a single lumbar puncture was directly followed by a complete cure of all symptoms with full preservation of perfect visual acuity. The preservation of perfect vision was due in large measure to the early diagnosis and to the prompt relief of the intraventricular pressure which had not remained for sufficient time to cause secondary changes within the eyeball.

SOME REMOTE EFFECTS OF BAD FEEDING.*

By FRANK VAN DER BOGERT, M.D.,
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It is at the risk of being considered a faddist that I present before this Section a paper which might be looked upon as an attempt to attribute all the ills of childhood to bad dietetic management.

More and more importance is constantly being attached to the part played by the gastro-intestinal tract in the production of ill-health. Delicacy, lack of vigor, poor bodily development, wasting and muscular weakness and in co-ordination, may all be definitely attributed to lack of nourishment due to inability to digest and assimilate, and to imperfect metabolism.

Most of the functional nervous disorders of childhood are now believed to be dependent upon gastro-intestinal toxemia. Educators are realizing that naughtiness at school is indicative of disturbed health. The influence of auto-intoxication in the production of certain vascular and functional disturbances of the eye is now a practical certainty.

It need not then be considered "Therapeutic Nihilism" to criticize the methods of the many who even today treat functional nervous derangements with bromides, anemia with iron, and general asthenia with tonics, and absolutely disregard the cause of these conditions which are generally conceded to be due to the malassimilation and toxemia of gastro-intestinal disorders.

These are the conditions which, together with what might be considered more specific effects of individual excesses upon individual tissues, may be discussed as remote effects of bad feeding.

By bad feeding we mean irregular feeding, too frequent feeding, between meals feeding, and the allowance of markedly indigestible and badly prepared foods, and excesses in one or more particular elements of the food, all practiced over a considerable period of time.

All of these dietetic errors may be operable from early infancy, although probably as often originating after the first year, and this study of feeding histories has for its object the determining of the importance of early errors and excesses upon the future health of the child.

It has been my practice to include in my case records of older children, in addition to a later dietetic history, a history of feeding in early infancy. These records include the length of time nursed, whether the feeding has been regular or irregular, and as complete as possible, a history of artificial feeding when this has been employed.

The history of irregularity of nursing or feeding and the history of artificial feeding, especially when many changes have been made, have necessarily been no doubt inaccurate in a majority of cases, and, therefore, of little value in making deductions.

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* Read at the Annual Meeting of the Medical Society of the State of New York at Buffalo, April 28, 1915.

The effect of prolonged mursing upon the later health has always been accepted. Of 200 consecutive cases taken from my case notes, and all, of course, sick children, 77 or 38½ per cent had been nursed for one year or longer. Of these 77 prolonged nursers, 66 showed chronic digestive symptoms, and at least 40 gave evidence of toxemia, including perverted disposition, disturbances of sleep and functional nervous disorders, including chorea.

In a paper read last year before this Section, in which I endeavored to show some connection between the growth and recurrence of adenoids and a bad dietetic history, it was suggested that nursing errors had some bearing, and too prolonged nursing was mentioned as a factor. A recent study of my records has shown that 60 cases in which adenoids were noted showed 24, or 40 per cent to be prolonged nursers. Of 55 cases of urinary incontinence, 17, or about 31 per cent had been nursed one year or over. Adenoids and enuresis are commonly associated.

The ill effect of prolonged nursing probably depends upon two factors: carbohydrate excess, from the high carbohydrate content of the breast milk, and irregularity of feeding and overfeeding, with consequent digestive derangement, since prolonged nursing practically always means nursing in addition to other feeding, and much of the nursing is practiced at night when the digestive organs are entitled to rest.

Of 100 consecutive cases studied it was only possible to obtain a satisfactory history as to regularity or frequency of the feeding in only 54, and of these 37 were irregular or too frequent, 16 apparently fed regularly and at suitable intervals. The proportion then of the badly fed to the properly fed was two to one among the sick children examined.

More than 50 per cent of the cases studied admitted gross dietetic errors in later childhood. The apparent effects of these errors will be discussed in three groups; those which seemed to depend upon proteid excess, those apparently due to fat excess, and those which may be fairly attributed to carbohydrate excesses and which appear to be far more common in childhood. In this last group will be considered the irregular and between-meals feeders since irregular feeding is practically synonymous with between-meals eating and eating between meals almost invariably means carbohydrate excess, since the articles usually eaten are sweets and starches, candy, bread and cakes.

As far as could be learned from the histories, proteid excesses were rare. Only two cases could be considered excessive meat eaters, only two were apparently consuming excessive quantities of milk. Recently, when prescribing beef juice to a child of two years, an objection was made by the mother that animals who live upon a meat diet are ugly and irritable. An excessive meat diet may unquestionably render a child ugly and irritable through intestinal putrefaction, but excesses in any direction may give practically the same result. Children, however, with great excess of indican in the urine appear to be more ferocious as a class.

Although the dietetic histories of only 50 cases showing marked reactions for indican in the urine were studied, it seemed safe to conclude that the presence of large amounts of indican were not indicative of any specific dietetic excess, but rather of a general digestive disturbance. Though indican must originate in decomposition of proteid matter, the condition seems to be proteid intolerance brought about by the digestive catarrh rather than proteid excess. The symptoms in the indican cases were little different from those showing very little or no reaction. Functional nervous disorders, especially noted in the disposition and sleep, were the same in both. Night terrors and sleep walking, as well as mental dullness, occurred with no indican.

Certain skin lesions appear to be commonly associated with indicanuria, and therefore may possibly be dependent upon the toxemia of proteid decomposition. Urticaria may be mentioned in this connection. Eczema seems to be more commonly noted with carbohydrate and fat histories. A small number of choreas in which the indican test was made showed 50 per cent to give very marked reactions.

Bad results from the ingestion of large quantities of fat are more evident in infancy. In later childhood they are manifested in the conditions now conceded to be due to acidosis, recurrent or cyclic vomiting, recurrent bronchitis and asthma, and the effects of the excess directly upon the digestive tract with consequent disturbance of digestion and assimilation.

It is with carbohydrate excesses that we have to deal principally in children. What is conceded to be the normal diet between the second and fifth years is to a very large extent carbohydrate. Sugars are craved by practically all children, starchy foods are palatable and made more so by the addition of sugar, and continual efforts on the part of the manufacturers of prepared cereals, crackers, and the like to make them more palatable, increase the temptation to over consumption. Again these articles are easily obtained, cheap and easily prepared. Prolonged nursing probably exerts its bad influence to a great extent through carbohydrate excess. The artificially fed infant is probably, in nine cases out of ten, overfed with sugars or starches, and from this period on the error continues.

The very high mortality of diabetes in the young appears to depend to a large extent upon our inability to control the dietetic management. Children demand just those elements of food which act adversely upon the diabetic, and few parents have the strength of character to deny them. Even though parents live up to the régime, neighbors and friends almost invariably interfere. In a case now under my care, a boy between six and seven years old, seen first in a state of coma, the urine has been free from sugar for more than a month. On November 28th the child weighed 40 pounds, on April 10th the weight had reached 44½ pounds with slightly lighter clothes. His general condition was apparently perfect. This so far good result, I attribute to the fact that the ability to control is exceptional, the patient refusing anything offered of which he is in the least suspicious.

Dietetic control seems to stand in direct relation to the age of the patient, the younger the patient the more difficult the control. This is apparently especially true of carbohydrates. It might be suggested that the pancreatic weakness itself is likely contributed to by early errors in diet. The pancreas, like every other organ or tissue in the body, is to a great extent what its nourishment makes it.

The association of a bad dietetic history with the presence of adenoids and large tonsils was very striking. Having studied these cases in their dietetic histories, and having watched the results of dietetic treatment without operation, and as an after treatment in operated cases, I am convinced of the part played by diet in the establishment of a predisposition to enlargement of both adenoid tissue and tonsils. It is not conceivable that all the gastrointestinal symptoms found associated can be secondary, and the almost invariable history of gross dietetic errors cannot be disregarded.

A large percentage of the cases of adenoids in which feeding histories were studied showed starch and sweet excesses. Of 60 adenoid cases, over 58 per cent gave such a history. The number of tonsil cases was too small from which to fairly draw conclusions, about 50 per cent of them, however, were carbohydrate feeders.

Urinary incontinence was associated frequently with carbohydrate excess. Over 69 per cent (38 out of 55 cases) had been consuming large quantities of sugar and starch. Regulation of the diet, with restriction of starches and sweets, has in the treatment of this condition certainly appeared to give results.

Indican was present in only 13 of the 55 cases of enuresis, which would make it appear that the limiting of meat in the diet of incontinence cases is not usually indicated. Excessive meat ought to manifest itself in indicanuria.

Of 10 cases of enuresis, in which stool examinations were made, 8 showed undigested starch.

Whether we consider the symptoms due to interference with central control, or to reflex irritation, whether the cause lies in the composition of the urine or an irritable bladder, or whether the super renals or the kidney hormone are at fault, intestinal toxemia or malnutrition might account for all.

Although an attempt has been made to differentiate the results of certain specific errors, such differentiation is practically impossible and we must content ourselves to a great extent with proofs of the effects of bad feeding generally.

It is conceded that the severity of infections depends as much upon the resistance of the individual infected as upon the virulence of the infecting agent, and that poor resistance may be due to bad feeding. The conditions which predispose to various catarrhal conditions of mucous membrane and skin, which has been described as the exudative diathesis, on the one hand, and those which predispose to glandular enlargement, the so-called lymphatic diathesis, on the other, though no doubt to an extent congenital, are also in part undoubtedly due to an inability of the body to utilize necessary elements of the food, and therefore depend thus far upon faulty metabolism. Even the hereditary tendency may cause us to be justly suspicious of the dietetic habits of past generations. Often when criticizing the diet we are met with the reply "our parents raised their children on such food, why should not we?"

The cases of scarlet fever and measles which I have seen terminate fatally appeared to be almost without exception the exceedingly badly fed. In scarlet fever I have been particularly impressed by the apparent effect of past carbohydrate excesses upon the glandular tissues about the throat, and the fatal cases have appeared to be due to these glandular complications. Susceptibility to septic sore throat seems to be more common among the badly fed.

In none of the infectious diseases is the influence of diet upon the outcome so evident as in whooping cough. In all catarrhal diseases this influence is marked, but the tendency to vomiting, and the stomach and bowel disturbances brought about directly by the paroxysms, doubles the effect. Personally I feel satisfied that the advice to feed such patients immediately after the attack of vomiting, in the hope of maintaining better nourishment, is exceedingly bad and aids materially in prolonging the case, and in encouraging distressing and even fatal complications. The value of vaccine therapy in this disease depends to a great extent upon the ability to treat these cases without the administration of drugs, usually given in the form of nauseating syrups, at such frequent intervals, and in such large doses as to unquestionably increase the severity of the gastro-intestinal complication and thereby lower resistance to the infection.

Susceptibility to catarrhs of the mucous membranes may be further exemplified by the frequent occurrence of colon bacillus, cystitis and vaginitis.

Of the effects, or symptoms due to toxemia, the most common and generally distressing is the disturbance of the child's nervous equilibrium. Undoubtedly the whole life of the individual as well as the contentment and happiness of the family depends upon the diet of the child. In chronic gastro-intestinal disorders the improvement in disposition is one of the earliest results of a regulated diet, and if parents realized the value of a carefully regulated feeding in this one particular, the assurance of a peaceful, happy household, they would demand this regulation of the physician.

In conclusion I would suggest that were the dietetic histories of all patients seen by the physician more carefully studied, many a home made unhappy by sickly, irrepressible children would be brightened, the task of many a teacher lightened, many a diagnosis of tuberculosis found to be erroneous, many a belly left unopened, and infectious diseases saved a fatal termination, and most of this without the administration of drugs.

NUTS AND FRUITS—THEIR VALUE IN THE DIET OF CHILDREN.*

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NUTS and fruits form together what is known as a fructarian diet. To within a short time nuts and fruits were given empirically with a rather indefinite idea that fruits were laxative and nuts were constipating. Among the laity it is also firmly established that nuts give rise to indigestion and that fruits cause hyperacidity. To some of us the knowledge that nuts are highly nutritious is new. They, however, contain water, protein, fat, sugar, starch, crude fibre, and ash in large proportions. Each kind of nut also has its peculiar and particular caloric value. Dry nuts are very high in nutritive value, and bulk for bulk they contain more fat than any vegetable substances I know. Advantage is taken of this fact to make nut butters and substances akin to them. These nut butters are decidedly more economical than ordinary cream butter and are equal in value to them as they contain proteids, fats, carbohydrates, mineral matter and food salts, and are therefore to be compared with cream and top milk. Robert Hutchinson believes nuts are not so easily digested in the stomach because of their excessive fat, and on account of a high proportion of cellulose, which latter forms a dense and compact framework throughout the structure of the nut. By good mastication, however, and better through grinding and cooking the digestibility is greatly increased.

The absorbability of nuts is marked. Many fructarians have lived on a diet of nuts and fruits and have done well. In experiments in California it was found that 82.5 per cent proteid, 86.9 per cent fat and 96 per cent of non-nitrogenous matter was absorbed. The nutritious value of nuts being so high I have given them to children as a substitute for meat in intestinal fermentation, for they are a more concentrated food than even cheese. For instance, thirty large walnuts weighing without shells 100 grammes contain as much fat as 2¾ lbs. of moderately lean beef; but on the other hand 2⅗ oz. of the beef would be equal to them in proteid.

The commercial demand for nuts is changing with the years, through wider knowledge of their nutritive qualities and through a wider understanding of selection and breeding. We, therefore, nowadays enjoy nuts of larger size, better flavor and thinner shells. The flavor of nuts is dependent upon certain oils, although in some varieties we have also specific flavoring bodies. The nut oils readily become rancid, which must be remembered in making nut butters for children. Certain nuts have certain flavors and children have their preference as to these in the same manner as they enjoy the flavor of certain fruits. For instance the chestnut has a starchy as well as a nutty flavor; the almond, peach and plum pits possess a cynanid acid flavor. Roasted peanuts, which our youngsters so much like, depend for their flavor upon the browned oils, starches, and other carbohydrates.

Some nuts are high in protein, the peanut, for instance, 29.8 per cent, and the butternut 27.9 per cent, surpassing in this regard many ordinary vegetables and animal foods. The pecan on the other hand is richest in fat 70.7 per cent, while the Brazil nut, the butternut, the filbert, hickory nut, walnut, and pine nut contain 60 per cent. The beechnut and peanut contain of fat between 50 and 60 per cent.

The dried chestnut has the highest carbohydrate content or 73 per cent. The mineral matter ranges in excess of 2 per cent in most nuts.

The discomfort of eating nuts is due partly, as I have said before, to their faulty mastication, as well as to an erroneous custom of giving children nuts after a hearty meal between meals or given late at night. They should form an integral part of a meal. Probably nut protein is not so easily digested as meat protein due, no doubt, to water content of 3 to 5 per cent in nuts as against 50 to 70 per cent in meat. It is, therefore, fair to assume that the finer nuts are divided, chopped and mashed, the more rapid will be their digestibility, presupposing they are not eaten after a hearty meal.

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Professor M. E. Jaffe speaking enthusiastically, believes that after thorough mastication the nut protein is as easily, if not more so completely digested than the protein of bread and milk.

Carrington says: "Nuts are less liable to cause indigestion when they form the sole element or the great part of a meal or when mixed with fruit than when eaten in combination with any other food." I cannot fully agree with him. Sometimes discomfort comes from overstocking the digestive tract with nut protein. Experiments made at the California station showed that considerable quantities of nuts could be taken without distress. Carrington furthermore believes that a diet of nuts and fruits contain a higher percentage of nutriment than ordinary foods, besides being very cheap. As to the advisability of cooking nuts or of eating them in a raw state, Gibbons believes that unfired nuts and vegetables (unfired proteids) neutralize and absorb the acids of the stomach and prevent stomach fermentation. Drew says, speaking of nuts and vegetables: "They do not endanger the system with proteid poisoning since the gastric juices determine the quantity of their protein required and to be absorbed." Unfired protein has a wholesome chemical constitution after it is digested and absorbed. Cooked and baked legumes and nuts (cooked proteids) have lost their alkaline activity and tend to putrid fermentation in the stomach and are sure to decay in the intestines, the absorption of this decomposition causing autointoxication and constipation.

The more vigorous the child the more easily does it digest nuts and their butters. A word as to the preparation of nut foods. Salt, by the way, does not make nut food more digestible. Nut butters and nut milk should be prepared from freshly ground or chopped nuts, freed from chaff, and reduced to a paste. They should be sealed in glass or earthenware jars. Nuts are commercial in many forms, in syrups, with powdered sugar, with malt, almond paste, the famous German marzipan and in many other forms. In Stuttgart, Germany, when a lad I remember the delight of the chestnut dressing for turkey and of boiled strained Italian chestnut for birthday cake filling. Medicinally we give diabetics flour and meals made from nuts except of the chestnut. It is to be remembered also that many peoples depend to a great extent upon nuts as food. Chestnut flour forms a large part of the food of the Italian peasant. In children I find that the addition of nuts to the meal prevents overeating and the bolting of great masses of food.

Mothers should understand the food value of nuts better, giving a variety of nuts to suit the individual child. Vegetables, nuts and fruits contain sufficient nourishment for the body, but physiologists generally agree that a mixed diet containing meats, eggs, milk, fruits, cheese, etc., is generally to be advised as the protein from such a diet has a higher co-efficiency of digestibility than nut protein. I want it thoroughly understood that I give nuts and their butters not as a food alone in itself, but as an addition to the diet. Cautiously, after weaning, the child should be given nut butter. Such butters must be more carefully prepared than those for older children. The nut kernels are pounded in a nut mill or pestle until of thick creamy consistency, strained through two layers of clean, boiled muslin cloth or a fine wired sieve to remove any lumps. Add fruit juice or finely cut fresh fruit to it, or better mashed fruit. Watch the stools carefully for undigested particles or any chemical disarrangement as diarrhœa, duodenitis or acute entero-colitis. If the butter agrees, increase the quantity gradually not overstocking the child's stomach or digestive system. If disarrangement should appear, stop the nut food for a while and begin again later. As the child grows and the teeth appear the nuts are then ground and pounded but not strained; they should be chewed well. The third stage is to remove the kernels from the shells—not grind them but let the child chew them well. The last stage is to have the child crack the shells with the teeth, the shells, therefore, must not be hard. This cracking is good for the jaw muscles and for the tooth roots. Again increase the quantity of nut food as it agrees.

In the constipation of children nuts form a valuable aid as lubricants on account of the oils but as irritants from the large amount of refuse they leave.

Fruits are given to infants and children for the following reasons:

1. They are appetizing and palatable.
2. They are very refreshing.
3. On account of their nutritive values.
4. On account of their salts.
5. On account of their diuretic action.
6. On account of their laxative action.
7. On account of their tonic action.
8. On account of their anti-scorbutic action.

A child is attracted by the look of raw, ripe fruit and by the appetizing methods of cooking and serving it. A child instinctively smells the raw fruit. The fine aroma is caused by the ethereal oils contained in the cells of the skin. In ripened fruits, which only should be given, the quantity of acid and cellulose is lessened. The sweetness of a fruit can often be determined by outward appearances. Truelle after many years observation found that fruits with yellow skins contain much sugar but little perfume. "As a general thing," he says, fruits with glossy skins are juicy but possess strong odors. To obtain a sweet fruit without much acid it should be allowed to hang upon the tree until ripe." "As fruit ripens" Thompson says, "it absorbs more and more oxygen and the tannin and vegetable acids which it originally contain are altered so that it becomes less astringent and acid, the starch is more or less turned into levulose or glucose and soluble pectin is formed. The aroma and taste depend upon the relative quantity of these different substances together with certain volatile ethers and oils in the skins." It is well for the mother to remember that the more luscious the fruit the more soluble are the sugars and the special flavoring substances it contains.

Fruits are refreshing, for I believe that the water contained in the raw fruit juices of certain or of all fruits enjoys a certain vitality or tang, electrical reaction or whatever it may be called. As Parcault so strongly points out, this peculiar vitality simulates that of a mineral water.

Fruits are nutritious. Many savage tribes exist on nuts and fruits almost wholly. Carrington believes that a fructarian diet is more nutritious than is meat. Jaffe mentions three children living upon such a diet, and though undersized they were healthy and not suffering from colds or the average childhood maladies. Personally I believe in a general diet. Major McCay, mentioning the hill tribes of lower Bengal says of them, "that through an excess of vegetables and fruits, they are degraded, lacking ambition and suffering from an increased peristalsis thereby throwing out the food before it is sufficiently assimilated and digested. Only 55 per cent of the protein was absorbed." Meat in the amount given to our young is a crime. Intestinal intoxications with all its attendant evils are seen daily. Meat, however, in small quantities is, I believe, absolutely essential to the child's growth because many meats contain a large percentage of albumin and the nuclein of meat is easily absorbed and assimilated in the body. The nucleins, however, form poison bases during the disintegration process and from these uric acid is formed an excess resulting in gout, rheumatism, increased blood pressure and the like. Fructarians, as Sager says, point to the fact that meat putrifies quickly, undergoes a quick chemical dissolution, while nuts and fruits decay slowly; they believe the latter food to be, therefore, purer and more fitted for the ideal diet. The raw and cooked fruits with their juices as a diet addition tends to overcome the faulty preparation of other foods as meat, vegetables, etc., such food also I find being usually given to children too hot. Warm food excites an increased digestive activity, but this activity is not normal when the food is overheated. Also the sensory nerves of the lips and the nerves of taste are interfered with. The sense of smell is blunted, the enamel of the teeth is destroyed, and the food goes to the stomach unprepared. The mucous membrane of the stomach becomes hyperæmic and its glands enlarged. From prolonged boiling or overcooking the lime and phosphorus may be withdrawn from the food causing the teeth to suffer.

In general the albuminous products of raw fruits are easily assimilated in the intestines. Hutchinson reports that 80 per cent of fruit proteins, 90 per cent of fruit fats, and 95 per cent of fruit carbohydrates are absorbed.

As to fruit salts. The carbohydrate content of fruit is glucose, levulose and saccharese, although the latter exists in a very small amount and diminishes in proportion to the ripeness of the fruit. This levulose or fruit sugar represents starch in the stage of complete digestion and ready for instant absorption in the body. It is ideally and wonderfully suited to delicate stomachs, more so than is cane sugar. The fig, the banana, the apple, apricot and pineapple contain levulose for instance. It is a great aid in the digestion of foods. Also the acid fruits such as the lemon, lime, grapefruit, oranges, cranberries, currants, and pineapples are very valuable for their acids and organic salts, existing mainly in combination with alkalies as the citrates, malates, or tartrates of potassium sodium, magnesium and calcium. The final stage in the digestion of fruit is the conversion of fruit acids and salts into alkaline salts chiefly carbonates.

When the juices from the fruit are taken into the digestive canal, they are readily absorbed and carried with the absorbed food to the liver, where the acids and acid elements of the organic salts are oxidized releasing the potassium, the sodium, the magnesium, etc., which are changed to carbonates these increasing the alkalinity of the blood. These alkalies are furthermore eliminated by the kidneys, hence the diuretic action. The acid fruits are very diuretic.

The excess of acids in the unripe fruit leads to irritation of the stomach and intestines causing colic and diarrhœa. If, however, the cellulose and the acids are in moderate quantities as in ripe fruit, a gentle stimulation, a laxative action on the intestinal wall is exerted. No drug can compare with these fruits in the cleansing of the intestinal tract. A fruit regime is devoid of toxins and is bad culture media for bacteria.

The tonic action of fruits and their juices is marked. The organic salts rouse the appetite, aid digestion by increasing the flow of saliva and indirectly of the gastric juice. They are stimulants and sialogogues. As the fruit juice reaches the intestines the acids increase the activity of the chyme, stimulate the secretions of the liver, of the pancreas, of the intestinal glands, and of the muscles. Uncooked fruits excite the mind to its highest activity. Lorand writes that some fruits are even richer in iron and lime than ordinary foods. Where the bottle milk is often poorly digested, the addition of fruit juices, particularly pineapple juice which contains peptongenic and digestive properties will remedy the condition.

In scurvy, stomachitis, and other digestive conditions the fruit juices are almost a panacea on account of their anti-scorbutic qualities.

In a paper of this kind it is impossible to give the qualities of each fruit, of the different berries, of fruit juices, and of the pro and con in the cooking of fruits and nuts.

My summary is a brief one. The nutritive qualities of fruits and nuts are not to be depreciated, not to be given to the child as a pleasurable and luscious appetizer only, but as a food, an addition to the general diet, stimulating, nourishing and exhilerating it to a stronger mental and physical existence.

FOOD AND FEEDING.

CHALMERS WATSON, M.D.

	Composition of Nuts		Comparative Value of Edible Portion				
	Refuse	Edible Portion	Water	Protein	Fat	Carb.	Ash
Almonds	64.8	35.2	4.8	21.0	54.9	17.3	2.0
Brazil nuts	49.6	50.4	5.3	17.0	66.8	7.0	3.9
Filberts	52.1	47.9	3.7	15.6	65.3	13.0	2.4
Hickory nuts	62.2	37.8	3.7	15.4	67.4	11.4	2.1
Pecan nuts	53.2	46.8	3.0	11.0	5.4	42.1	1.5
Chestnuts	16.0	84.0	45.0	6.2	5.4	42.1	1.3
Walnuts (English).	58.0	42.0	2.8	16.7	64.4	14.8	1.3

Kind of Food	Refuse Per Cent	Water Per Cent	Protein Per Cent	Fat Per Cent	Sugar Starch Per Cent	Crude Fiber Per Cent	Ash Per Cent	Fuel Value per lb. Calories
Almond	47.00	4.9	21.4	54.4	13.8	3.0	2.5	2.895
Beechnut ...	36.90	6.6	21.8	49.9	18.0	18.0	3.7	2.740
Brazil nut ..	49.35	4.7	17.4	65.0	5.7	3.9	3.3	3.120
Butternut ..	86.40	4.5	27.9	61.2	3.4	3.4	3.0	3.370
Chestnut, fresh	15.70	43.4	6.4	6.0	41.3	1.5	1.4	1.140
Chestnut, dry	23.40	6.1	10.7	7.8	70.1	2.9	2.4	1.840
Hickory nut.	62.20	3.7	15.4	67.4	11.4	11.4	2.1	3.345
Peanut	27.04	7.4	29.8	43.5	14.7	2.4	2.2	2.610
Pecan	50.10	3.4	12.1	70.7	8.5	3.7	1.6	3.300
Walnut	58.80	3.4	18.2	60.7	13.7	2.3	1.7	3.075
Almond butter	.....	2.2	21.7	61.5	11.6	11.6	3.0	3.340
Almond paste	.....	24.2	13.1	23.9	29.4	7.8	1.6	1.900
Peanut butter	.....	2.1	29.3	46.5	17.1	17.1	5.0	2.825
Malted nuts..	.....	2.6	23.7	27.6	43.9	13.9	2.2	2.600
Cocoanut candy	.....	3.9	2.4	11.9	76.7	4.5	.6	2.000
Peanut candy	.....	3.0	10.3	16.6	66.9	2.1	1.1	2.115
Almond meal	.....	8.5	50.6	15.6	16.0	2.9	6.4	.....
Chestnut flour	.....	7.8	4.6	3.4	80.8	80.8	3.4	1.780
Cocoanut flour	.....	14.4	20.6	2.1	45.9	10.1	6.9	1.480
Hazelnut meal	.....	2.7	11.7	65.6	17.8	17.8	2.2	3.185

(M. E. Jaffe)

OTHER FOODS FOR COMPARISON.

(M. E. Jaffe)

Kind of Food	Refuse Per Cent	Water Per Cent	Protein Per Cent	Fat Per Cent	Sugar Starch Per Cent	Crude Fiber Per Cent	Ash Per Cent	Fuel Value per lb. Calories
Meat								
Round steak.	.....	65.5	19.8	13.6	....	...	1.1	9.50
Boiled eggs..	11.20	65.0	12.4	10.7	....	...	.7	.680
Wheat flour High grade	.....	12.0	11.4	1.0	74.8	.3	.5	1.650
White bread.	.....	35.3	9.2	1.3	52.6	.5	1.1	1.215
Dried beans.	.....	12.6	22.5	1.8	55.2	4.4	3.5	1.605

The Lewis Stephen Pilcher Semi-Centennial Committees

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Legislative Notes

HEALTH INSURANCE.

COMMENT ON THE MILLS BILL, SENATE 236.

This bill, entitled "to establish a system of insurance to provide benefits for employees in case of death, sickness and accident, not covered by the workmen's compensation," was reported upon by the writer as Chairman of the Committee on Legislation of the Medical Society of the County of New York at the February meeting. An outline of the critique of the bill is as follows:

It brings medical service, nurse, drugs, appliances and funeral expenses to all persons employed in the State at manual labor (with specific exemptions), earning less than one hundred dollars per month.

The cost of maintenance of this insurance is borne as follows:

(1) By the insured paying two-fifths of cost.
(2) By the employer paying two-fifths of cost.
(3) By the State of New York paying one-fifth of cost.

The insured receives *benefits* derived from this act through the medium of a society or fraternal order which is approved, a trade or health association, formed to conform with the provisions of this bill and designated in it the "carrier."

The machinery to make this insurance effective resides in the following outlined organization:

1. *The State Social Insurance Commission*, composed of three commissioners of whom one is designated chairman. They appoint their own secretary of the Commission.

The salary of the chairman is $6,500.

The salary of the other two members is $6,000 each.

The salary of the secretary is $5,000.

The duties and powers of these officials are prescribed:

2. *The State Social Insurance Council*, consisting of twelve members, six of whom represent "employer directors" and six represent "employee directors" of the *Local Trade Health Association or Insurance "Carrier."* Provision is made for the officers of the Council, its duties and its privileges.

The State is divided into districts comprising each 5,000 industrial workers and to each district there is assigned:

3. *A Local Trade or Health Association* (*Carrier*). These associations to be corporations whose constitution, powers and privileges are outlined. Each association is to elect

4. *A Committee of the Association* of not less than twenty and not more than one hundred members and this Committee elects

5. *A Board of Directors*, in number from eight to eighteen.

Among its other powers this Board of Directors makes the necessary arrangements to carry out the purposes of the Association. It makes contracts with *physicians, nurses, hospitals, dispensaries, pharmacies, institutions, associations and any other persons* necessary for the business of the Association.

The above outlines the bill. It does not go into the smaller details but gives sufficient information for the discussion of fundamentals at this time, because once fundamentals are agreed upon, details may be added and it shall be my pleasure subsequently to report again on further details.

CRITIQUE.

1. *The Bill is Untimely*. The Workmen's Compensation Law is still in its experimental stage in this State. Important questions regarding it, particularly in regard to the Medical profession, are still unsettled. There is much to be desired in the line of improving the relationship between the Medical profession and the Workmen's Compensation Commission. Why then extend the insurance to another group of persons? Why establish an expensive and elaborate system of interlacing officials and organizations *now*, before the first law placed on our statute books is perfected?

No statistics from countries where such insurance is in force show any diminution in the amount of sickness in that community and therefore the cry of "safety first" which helped rush the compensation act through the legislature does not apply in analogy or parallel here. There is now no need for hurry. On the contrary, there is demand for slow deliberation so that a good measure may result.

2. *Its Burden is Unevenly Distributed.*

It puts its burden equally upon employer and employee and in part upon the State. Theoretically this would seem ideal. Practically it is far from the ideal. The benefits to the employer do not in any way equal those to the employee. What he is supposed to gain by the quicker return to work of persons who apply and receive medical attention early, in the very commencement of their ailments, he (the employer) loses on the other hand, through the large percentage of malingerers, which experience in Europe has proven is very high among this type of industrial workman.

Theoretically the claim that the public interest is involved in the improvement of the health of the insured persons may be granted, but from the practical standpoint the excessive amount of medical work thrown upon contract physicians conduces to poor medical service and counteracts any tendency toward reducing the amount of sickness in the State. Hence, the State's interest becomes one of supervision and control solely and for this the State is asked to pay one-fifth of the cost of maintenance. This is unjust to the tax payers. The only way to reduce sickness to the minimum in a given state is to institute a system of state medicine and to ask the state to employ physicians and surgeons and pay them a just wage exactly as the state pays for other services rendered its citizens. The proposed bill falls far short of this.

3. *The Medical Profession is not Represented in the "Executive Department of the Insurance Commission."*

The bill treats the members of the medical profession either as individuals or in groups as contract employees of the local trade or health associations, or "carriers," and gives to the board of directors of these health or trade associations or "carriers" full power in the making of contracts. The medical profession is not represented either in the directory of the health or trade associations or in the insurance council or on the insurance commission. The experience of any doctor who has engaged in ordinary lodge practice will show the necessity for adequate representation on such governing boards and it is only through such representation that the usual, casual evils of contract practice can be mitigated and controlled.

The bill should be made to provide, either for a medical council to report to the commission on the medical aspect of the insurance question annually and its reports and recommendations have equal weight and consideration by the Insurance Commission and eventually to be transmitted to the legislature through the Governor or, one of the insurance commissioners should be a physician with duties that concern improvements relating to the medical aspect of the question. Thus the medical profession will be adequately represented.

As an alternative the Medical Society of the State of New York, already officially recognized, may take cognizance of these contracts, pass suitable rules and regulations to govern them and report to the legislature through the Governor, upon the professional side of the insurance question. The Medical Society of the

State of New York could delegate these details to a suitable committee.

Of the two plans, the one first suggested is recommended for adoption and incorporation into the law.

4. *Hospital Abuse.*

As the bill stands, instead of lessening hospital and dispensary abuse, it will probably enhance this evil. It promotes contracts between "carriers" and hospitals and even authorizes the establishment of new hospitals for the insurance commission's specific purpose. This brings up many new questions on which reports will be made later.

5. *Pernicious Influence of the Bill.*

The bill is pernicious in that it legalizes the worst evils of contract practice. It necessarily will cause physicians to treat large numbers of patients at minimum rates. In other words, medical services are pushed to their commercial limit and no provision is made to govern the character of the medical services to be rendered. This defect in the bill may be partly rectified if medical council is introduced or a medical commissioner added with powers of supervision over the medical services rendered, the number of patients administered to and the qualifications of the medical men employed. This is the most important consideration to protect the public and give them adequate services for the money expended in the interest of this insurance.

6. *Lack of Detail.*

The absence of any details as to how the contracts between the "carrier" (local trade or health associations, etc.) and the physician is to be made is very significant in a bill, apparently as carefully drawn as this. Every other detail is prescribed, officers, constitution, functions of an elaborate organization, pay, penalties, fines, etc., and yet not one detail of the medical side of the bill is included. This leaves the rules and regulations governing such contracts in the hands of the commission, to be changed at its will or subject to subsequent legislation. In view of the fact that the matter is just being studied now the entire details might just as well be added to the bill.

If experience from abroad is to be any guide the contracts between insurance "carriers" and the contract physicians are to be "let" by public bidding. The doctor who bids the lowest gets the contract. In other words, he who contracts to do the greatest amount of medical service for the least, or minimum amount of fees, he gets the contract.

The character of the services to be rendered does not enter into consideration at all. To the "carrier" it simply means a business proposition of "getting some doctor to do the work with the greatest amount of saving to the association." This argument is met by the statement that the members of the association will object and prevent renewal of contract when ineffectual and inadequate medical services are rendered. But, if such a doctor is sufficiently complacent to a given number of malingerers while "off duty," supposedly sick, receiving benefits from the insurance "carrier," then such a doctor will have partisans enough to maintain his contract.

7. *Suggested Amendments.*

To make this bill acceptable at all, it should definitely specify:

(1) The minimum wage of the physician taking up this kind of contract practice.

(2) The maximum number of persons to be placed under a given contract practitioner's care.

(3) The appointment of medical physicians under these contracts should be made only after Civil Service examination to qualify the practitioner and should be limited to those qualified to practice under the Medical Practice Laws of this State.

8. *General Comments.*

In general the public is best served where the incentive to exact diagnosis and careful treatment exists; when the personal relationship of the family physician is maintained. No contract practice produces this desirable relationship. Especially not where the physician stands as a monitor between the patient and his idleness and where the detection of malingering, which is prevalent among contract patients, makes the visit of the physician not looked forward to as a means of help but the possible visit of an official who sits in judgment first and renders relief secondarily.

Where the individualistic features of family practice are lost, where excessive numbers of patients crowd upon the doctor's time, where the physician's income is fixed and the incentive to personal achievement in medicine is gone, not only will the medical art deteriorate but the service rendered become routine and second class.

It seems that the trend of the times is such that some manner of social insurance bill is bound, sooner or later, to be passed and become law. It seems almost too late to re-open the fundamental question as to the benefits to the public health from any such measure at all, and therefore the constructive criticism given above is submitted to help those framing a law which shall be just and equitable to all.

It behooves the medical profession to be unusually alert, to study these bills carefully as they are introduced and to take an active part in the framing of any law on this subject because the effect of this law on our statute books will be far-reaching.

Samuel J. Kopetzky, M.D.

BILLS INTRODUCED INTO THE LEGISLATURE.

January 25 to February 25, 1916.

IN SENATE.

Amending Section 13, Workmen's Compensation Law, relative to the treatment and care of injured employees by providing that if the injured employee requests it, the medical and surgical treatment provided by the employer shall be given by such physician as the employee selects. (Same as A. 58, 135.) By Mr. Dunnigan. To Judiciary Committee. Printed No. 219. Int. 219.

Amending Section 392, Public Health Law, by making the penalty for failure to file birth certificate, not less than $5 nor more than $50 for the first and second offences. Subsequent offences are a misdemeanor punishable by fine of not less than $10 nor more than $100 or imprisonment for not more than sixty days, or both. (Same as A. 723.) By Mr. Whitney. To Public Health Committee. Printed No. 595. Int. 565.

Amending Sections 250, 251, 252 and 253 and adding new Section 254, Public Health Law, by providing for an advisory council to be appointed annually by the Regents to advise them regarding courses and standards in training schools for nurses, and rules for the examination of nurses, and changing the provisions relative to definition of the practicing of nurses, the board of examiners of nurses, waiver of examinations and violations. (Same as A. 832.) By Mr. Jones. To Public Health Committee. Printed No. 671. Int. 635.

IN ASSEMBLY.

Adding new sub-division 6 to Section 237, Public Health Law, providing that any proprietary or patent medicine, as defined in Article 11-b, which fails to contain every ingredient stated to the department of health as a part of such medicine, or which contains any ingredient, the name of which has not been filed with the department as required, shall be deemed misbranded. (Same as S. 629.) By Mr. Fertig. To Public Health Committee. Printed No. 881. Int. 800.

To define and regulate the practice of osteotherapy, which is eclectic osteopathy. By Mr. Mahony. To Committee on Judiciary. Printed No. 955. Int. 864.

Abolishing the Mohansic State Hospital, providing for the sale of site thereof, and for the selection of a new site in the southern portion of the State within reasonable distance of New York City, but not within the Croton watershed and appropriating $200,000. (Same as S. 60.) By Mr. Bloch. To Ways and Means Committee. Printed No. 980. Int. 886.

Medical Society of the State of New York

17 West 43d Street, New York.
March 15, 1916.

The regular annual meeting of the Medical Society of the State of New York will be held on May 16, 1916, at 11 A. M., at the Casino Building, Saratoga Springs, N. Y.

W. Stanton Gleason, M.D., *President.*
Wisner R. Townsend, M.D., *Secretary.*

17 West 43d Street, New York,
March 15, 1916.

The regular annual meeting of the House of Delegates of the Medical Society of the State of New York will be held on May 15, 1916, at 8 P. M., at the Casino Building, Saratoga Springs, N. Y.

W. Stanton Gleason, M.D., *President.*
Wisner R. Townsend, M.D., *Secretary.*

110th ANNUAL MEETING.

Tuesday, May 16th.

Casino Auditorium, 11 A. M.

Calling the Society to order, by W. Stanton Gleason, M.D., President.

Invocation by Rev. H. P. LeF. Grabau (by invitation).

Address of Welcome, by Albert Warren Ferris, M.D., Chairman Committee on Arrangements.

Reading of minutes of the last meeting, by Wisner R. Townsend, M.D., Secretary.

Address of welcome, Hon. Edgar T. Brackett, Saratoga Springs (by invitation).

Oration on Medicine, by Richard P. Strong, M.D., Professor Tropical Medicine, Harvard University Medical College, Boston, Mass. (by invitation).

Tuesday, May 16th, 8.30 P. M.

Casino Auditorium.

General Meeting.

Under the auspices of the Medical Society of the State of New York, President W. Stanton Gleason, M.D., presiding:

"The Geology and Hydrostatics of Saratoga Springs" (illustrated with lantern slides), Albert W. Ferris, M.D., Saratoga Springs.

"The Therapeutic Importance of a Scientifically Conducted Health Resort," Walter B. James, M.D., New York.

"The Relation of the State to the Saratoga Springs Reservation," Hon. Charles S. Whitman, Governor of the State of New York (by invitation).

PRELIMINARY.
SCIENTIFIC PROGRAM.

Arranged by the Committee on Scientific Work.

Thomas J. Harris, M.D., Chairman,
104 East 40th Street, N. Y. City.
James F. McKernon, M.D., N. Y. City.
Percy Fridenberg, M.D., N. Y. City.
John L. Heffron, M.D., Syracuse.
George G. Ward, Jr., M.D., N. Y. City.
DeWitt H. Sherman, M.D., Buffalo.
Joshua M. Van Cott, M.D., Brooklyn.
Harry R. Trick, M.D., Buffalo.

By-Laws, Chapter XI.

Section 1. No address or paper before the Society, except those of the President and orators, shall occupy more than twenty minutes in its delivery, and no member shall speak upon any question before the house for longer than five minutes nor more than once on any subject, except by consent.

Sec. 2. All papers read before the Society by its members shall become the property of the Society. Permission may be given, however, by the House of Delegates or the Committee on Publication to publish such paper in advance of its appearance in the New York State Journal of Medicine.

Sec. 3. Any distinguished physician of a foreign country or a physician not resident of this state, who is a member of his own state association, may become a guest during any annual session upon the invitation of the President or officers of the Society, and may be accorded the privilege of participating in all the scientific work of the session.

The order of reading papers will be in accordance with the printed program.

SECTION ON MEDICINE.

Chairman, John L. Heffron, M.D., Syracuse.
Secretary, John M. Swan, M.D., Rochester.
Place of Meeting, Casino Auditorium.

Tuesday, May 16th, 2 P. M.

Joint Meeting with Sections on Public Health and Pediatrics.

Medical Examination of School Children.

"Some Practical Experiences in Medical Inspection," William A. Howe, M.D., Albany.

"The Neuropathic Child," Edward B. Angell, M.D, Rochester.

"The Vision of the School Child," F. Park Lewis, M.D., Buffalo.

"The Open Air School Child as a Type," Joseph C. Palmer, M.D., Syracuse.

"The Health of Rural Children," Thomas D. Wood, M.D., New York.

"Scope of Practicable Examination in Routine School Medical Inspection," Clinton P. McCord, M.D., Albany (by invitation).

"The Effect of Malformation and Infection of the Oral Cavity of the Child, Upon Its Future Health," Stephen Palmer, M.D., Poughkeepsie (by invitation).

Wednesday, May 17th, 9.30 A. M.

Physiological Therapeutics.

"The Value and Limitations of Physiological Therapeutics," John M. Swan, M.D., Rochester.

"The Nauheim Method of Bath," Simon Baruch, M.D., New York (by invitation).

"Clinical Report on the Administration of Mercurialized Serum in the Treatment of Paresis and Tabes Dorsalis," Richard H. Hutchings, M.D., Ogdensburg.

"A Study of the Cerebro-spinal Fluid in Twenty-five Cases of Cerebro-spinal Syphilis," Charles G. Sutter, M.D., Rochester.

Wednesday, May 17th, 2 P. M.

By-Laws, Chapter IX.

Section 3. The election of officers of sections shall be the first order of business of the afternoon meeting of the second day of each annual session. To participate in the election of any section a member must be registered with such section and must have recorded his name and address in the section registry.

Gout.

"The Diagnosis and Clinical Characteristics of Gout," Joseph H. Pratt, M.D., Boston (by invitation).

"The Determination of Uric Acid in the Blood and Remarks Concerning Its Value," Morris S. Fine, M.D., New York (by invitation).

"The Metabolism in Gout," Nellis B. Foster, M.D., New York.

"The Treatment of Gout," Arthur F. Chace, M.D., New York.

"Cases of Unusual and Atypical Joint Diseases," Harlow Brooks, M.D., New York.

Thursday, May 18th, 9.30 A. M.

"Functional and Organic Deformities in Nervous Diseases as Shown by Cases," Tom A. Williams, M.D., Washington, D. C. (by invitation).

"Tobacco and Blood Pressure," W. Gilman Thompson, M.D., and William H. Sheldon, M.D., New York.

"Studies in Acidosis," Charles G. Stockton, M.D., and John L. Butsch, M.D., Buffalo.

"Pernicious Anemia," Allen A. Jones, M.D., Buffalo.

"Recent Studies in Diabetes Mellitus," John R. Williams, M.D., Rochester.

SECTION ON SURGERY.

Chairman, Harry R. Trick, M.D., Buffalo.
Secretary, G. Scott Towne, M.D., Saratoga Springs.
Place of Meeting, Casino Building.

Tuesday, May 16th, 2 P. M.

"Post-Operative Ventral Hernia," Edwin MacD. Stanton, M.D., Schenectady.

"Primary Carcinoma of the Small Intestine; with Report of a Case," Edgar A. Vander Veer, M.D., Albany.

"Symptoms and Diagnosis of Cholelithiasis," Russell S. Fowler, M.D., Brooklyn.

"The Surgery of Splenic Anemia," George W. Cottis, M.D., Jamestown.

"Recent Progress in the Operative Treatment of Empyema of the Thorax," Howard Lilienthal, M.D., New York.

Wednesday, May 17th, 9.30 A. M.

Symposium with Section on Pediatrics.

"Types of Cerebral Defects in Children that May be Benefited by Operation," Herman G. Matzinger, M.D., Buffalo.

"Results of Cranial Decompression in Selected Types of Cerebral Spastic Paralysis Due to Hemorrhage," William Sharpe, M.D., New York.

"Toxæmia of Intestinal Obstruction in Children," Irving M. Snow, M.D., Buffalo.

"Intestinal Obstruction in Children with Special Reference to Intussusception," Edward W. Peterson, M.D., New York.

"The Surgical Treatment of Intestinal Toxæmia," Jerome M. Lynch, M.D., New York.

Discussion to be opened by Arthur W. Elting, M.D., Albany, and Eugene H. Carpenter, M.D., Oneida.

Wednesday, May 17th, 2 P. M.

By-Laws, Chapter IX.

Section 3. The election of officers of sections shall be the first order of business of the afternoon meeting of the second day of each annual session. To participate in the election of any section a member must be registered with such section and must have recorded his name and address in the section registry.

"The Causation and Treatment of Idiopathic, Operative, and Post-operative Ano-rectal Hemorrhage," Samuel G. Gant, M.D., New York.

Discussion opened by Descum C. McKenney, M.D., Buffalo.

"Radium Treatment of Various Surgical Conditions," Joseph B. Bissell, M.D., New York.

"Some Types of Spinal Injuries," Prescott LeBreton, M.D., Buffalo.

"The Treatment of Anterior Poliomyelitis," Charlton Wallace, M.D., New York.

"Moving Picture Demonstration of Bone Graft Technique," Fred H. Albes, M.D., New York.

Thursday, May 18th, 9.30 A. M.

"Diagnosis of Renal Tuberculosis," Thomas F. Laurie, M.D., Auburn.

"Prognosis and Treatment of Renal Tuberculosis," Edgar R. McGuire, M.D., Buffalo.

"Decapsulation for Chronic Bright's Disease," Samuel Lloyd, M.D., New York.

"Ureteral Calculi," Edwin Beer, M.D., New York.

"Pyelography," Henry G. Bugbee, M.D., and Leon T. Le Wald, M.D., New York.

"Moving Pictures of Operations Upon the Kidney," J. Bentley Squier, M.D., New York.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Chairman, George Gray Ward, Jr., M.D., New York.
Secretary, George B. Broad, M.D., Syracuse.
Place of Meeting, Casino Building.

Tuesday, May 16th, 2 P. M.

"Blood Pressure in the Toxæmia of Pregnancy," Francis C. Goldsborough, M.D., Buffalo.

"The Treatment of Breach Presentations," Ross McPherson, M.D., New York.

"The Influence of Luetic Invasion in Gynecology and Obstetrics," J. Wesley Bovee, M.D., Washington, D.C. (by invitation).

"A Further Report on the Technic of Abdominal Cæsarean Section," William M. Brown, M.D., Rochester.

"Accidental Hemorrhage and Its Treatment," James K. Quigley, M.D., Rochester.

Wednesday, May 17th, 9.30 A. M.

"Results and Technic of Vaginal Subtotal Hysterectomy for Procidentia and Cysto-Rectocele, associated with Fibroid Growths or Fibrosis Uteri," Hiram N. Vineberg, M.D., New York.

"The Technic of Vaginal Plastic Operations for Cysto-Rectocele and Prolapse of the Uterus," Robert T. Frank, M.D., New York.

"The Usefulness and the Definite Limitations of the Pessary Treatment of Retroversion and Prolapse," Robert L. Dickinson, M.D., Brooklyn.

"The Genital Reflexes and Their Role in the Production of Symptoms Arising in the Pelvis," Richard R. Smith, M.D., Grand Rapids, Mich. (by invitation).

"Gynecologic Surgery in Hystero-Neurasthenic Patients," Harry S. Crossen, M.D., St. Louis, Mo. (by invitation).

Wednesday, May 17th, 2 P. M.

By-Laws, Chapter IX.

Section 3. The election of officers of sections shall be the first order of business of the afternoon meeting of the second day of each annual session. To participate in the election of any section a member must be registered with such section and must have recorded his name and address in the section registry.

"Practical Aspects of the Internal Ovarian Secretion," William P. Graves, M.D., Boston, Mass. (by invitation).

"A Critical Review of the Operative Results in 500 Cases of Pelvic Inflammation," John O. Polak, M.D., Brooklyn.

"Infection of the Uterine Appendages; Its Sequlæ; Its non-Sacrificial Treatment," Edward E. Montgomery, M.D., Philadelphia, Pa. (by invitation).

"Resection of the Pars-Interstitiality in Diseases of the Fallopian Tube with a View to Conservation of the Uterus," Lillian K. P. Farrar, M.D., New York.

"End Results in the Present Day Treatment of Puerperal Sepsis," George W. Kosmak, M.D., New York.

Thursday, May 18th, 9.30 A. M.

"Diagnosis in Gynecology: What a Routine Physical Examination of the Female Pelvis Should Be, and What It Should Accomplish," Thomas J. Watkins, M.D., Chicago, Ill. (by invitation).

"Some Mistakes in the Diagnosis of Ectopic Pregnancy," Claud C. Lytle, M.D., Geneva.

"Renal Tuberculosis," Henry D. Furniss, M.D., New York.

"The Treatment of Procidentia Uteri," George Chandler, M.D., Kingston.

"Tortion of the Pedicle of Ovarian Cysts Complicating Acute Appendicitis," Ross G. Loop, M.D., Elmira.

SECTION ON EYE, EAR, NOSE AND THROAT.

Chairman, Percy Fridenberg, M.D., New York.
Secretary, Thomas H. Farrell, M.D., Utica.
Place of Meeting, Court Room, City Hall.

Tuesday, May 16th, 2 P. M.

Symposium on Labyrinthine Disease.

"Diagnosis," John B. Rae, M.D., New York.

"Treatment," Wendell C. Phillips, M.D., New York.

Discussion on Labyrinthine Disease opened by Alfred Braun, M.D., Edward B. Dench, M.D., Isidore Friesner, M.D., and John D. Richards, M.D., New York; W. Scott Renner, M.D., Buffalo.

"End Results of the Radical Mastoid Operation," Thomas J. Harris, M.D., New York.

Discussion opened by James F. McKernon, M.D., New York; Thomas H. Halsted, M.D., Syracuse; Joel M. Ingersol, M.D., Rochester.

"Direct Medication of the Bronchi for Asthma," Wolff Freudenthal, M.D., New York.

Discussion opened by John Kepke, M.D., Brooklyn.

"Endoscopy of the Oesophagus and Upper Air Passages in Children," Charles J. Imperatori, M.D., New York.

Discussion opened by Hubert Arrowsmith, M.D., Brooklyn; John McCoy, M.D., and Sidney Yankauer, M.D., New York.

"Surgical Treatment of Laryngeal Cancer," John E. MacKenty, M.D., New York.

Discussion opened by George E. Brewer, M.D. and Seward Erdman, M.D., New York.

Wednesday, May 17th, 9.30 A. M.

"Extraction of Cataract from the Vitreous," Howard S. Paine, M.D., Glens Falls.

Discussion opened by Edgar S. Thomson, M.D., J. Herbert Claiborne, M.D., Charles B. Meding, M.D. and Robert G. Reese, M.D., New York.

"Serum Therapy in Ophthalmology," Lee M. Francis, M.D., Buffalo.

Discussion opened by Wendell Reber, M.D., Philadelphia (by invitation); Colman W. Cutler, M.D., and A. Edward Davis, M.D., New York.

"Internal Secretions and Eye Disease," Otto W. A. Schirmer, M.D., New York (by invitation).

Discussion opened by Joseph Fraenkel, M.D., and Henry H. Tyson, M.D., New York.

"Intra-Cranial Surgery and Its Relations to Ophthalmology," Charles A. Elsberg, M.D., New York.

Discussion opened by James Bordley, Jr., M.D., Baltimore, Md. (by invitation); Harvey Cushing, M.D., and Clifford B. Walker, M.D., Boston (by invitation).

Wednesday, May 17th, 2 P. M.

By-Laws, Chapter IX.

Section 3. The election of officers of sections shall be the first order of business of the afternoon meeting of the second day of each annual session. To participate in the election of any section a member must be registered with such section and must have recorded his name and address in the section registry.

Symposium on Radiography of the Head in Its Relation to Diseases of the Eye, Ear, Nose and Accessory Cavities.

"Radiography of the Accessory Sinuses," Eugene W. Caldwell, M.D., New York.

"Radiography of the Eye and Orbit," George S. Dixon, M.D., New York.

"Radiography of the Mastoid Process," Frederick M. Law, M.D., New York.

"Radiography of the Sella Turcica and Pituitary Body," George C. Johnston, M.D., Pittsburgh, Pa. (by invitation).

Discussion on Radiography of the Head opened by Ellice M. Alger, M.D., Cornelius G. Coakley, M.D., Isaac S. Hirsch, M.D., Leon T. Le Wald, M.D., William H. Luckett, M.D., William H. Stewart, M.D., and John E. Weeks, M.D., New York.

"Treatment of Maxillary Sinus Disease," Clement F. Theisen, M.D., Albany.

Discussion opened by Lee M. Hurd, M.D., and Sidney Yankauer, M.D., New York; Nathan D. McDowell, M.D., Rochester; James F. McCaw, M.D., Watertown.

Thursday, May 18th, 9.30 A. M.

"The Conellan-King Diplococcus as a Causative Factor in Diseases of the Nose and Throat," James J. King, M.D., New York.

Discussion opened by Harold Hays, M.D., and J. J. Conellan, M.D., New York (by invitation).

"The Tonsil and Its Prophylaxes," Henry H. Forbes, M.D., New York.

Discussion opened by Charles G. Kerley, M.D., Henry W. Frauenthal, M.D., Godfrey R. Pisek, M.D., and Abraham L. Goodman, M.D., New York; Burton S. Booth, M.D., Troy; Walter S. Daly, M.D., Ogdensburg.

"Effects of Tonsil Operations on the Singing Voice," Irving W. Voorhees, M.D., New York.

Discussion on Tonsil Operations opened by H. Holbrook Curtis, M.D., P. M. Marafioti, M.D. (by invitation), Frank E. Miller, M.D., Clarence C. Rice, M.D., New York.

"Horse Serum in Tonsil Operations," James G. Dwyer, M.D., New York.

Discussion opened by John D. Jones, M.D., Utica; Clement F. Theisen, M.D., Albany; James J. Mooney, M.D., Buffalo.

SECTION ON PEDIATRICS.

Chairman, DeWitt H. Sherman, Buffalo.
Secretary, Edward J. Wynkoop, Syracuse.
Place of Meeting, Casino Building.

Tuesday, May 16th, 2 P. M.

Joint Meeting with Sections on Medicine and Public Health.

Medical Examination of School Children.

"Some Practical Experiences in Medical Inspection," William A. Howe, M.D., Albany.

"The Neuropathic Child," Edward B. Angell, M.D., Rochester.

"The Vision of the School Child," F. Park Lewis, M.D., Buffalo.

"The Open Air School Child as a Type," Joseph C. Palmer, M.D., Syracuse.

"The Health of Rural Children," Thomas D. Wood, M.D., New York.

"Scope of Practicable Examination in Routine School Medical Inspection," Clinton P. McCord, M.D., Albany (by invitation).

"The Effect of Malformation and Infection of the Oral Cavity of the Child, Upon Its Future Health," Stephen Palmer, M.D., Poughkeepsie (by invitation).

Wednesday, May 17th, 9.30 A. M.

Symposium with the Section on Surgery.

"Types of Cerebral Defects in Children that May Be Benefited by Operation," Herman G. Matzinger, M.D., Buffalo.

"The Results of Cranial Decompression in Selected Types of Cerebral Spastic Paralysis Due to Hemorrhage," William Sharpe, M.D., New York.

"Toxæmia of Intestinal Obstruction in Children," Irving M. Snow, M.D., Buffalo.

"Intestinal Obstruction in Children with Special Reference to Intussusception," Edward W. Peterson, M.D., New York.

"The Surgical Treatment of Intestinal Toxaemia," Jerome M. Lynch, M.D., New York.

Discussion to be opened by Arthur W. Elting, M.D., Albany, and Eugene H. Carpenter, M.D., Oneida.

Wednesday, May 17th, 2 P. M.

By-Laws, Chapter IX.

Section 3. The election of officers of sections shall be the first order of business of the afternoon meeting of the second day of each annual session. To participate in the election of any section a member must be registered with such section and must have recorded his name and address in the section registry.

"Achondroplasia, Its Differentiation from Rickets and Other Conditions," Charles Herrman, M.D., New York.

"Skin Test in Poliomyelitis," Albert D. Kaiser, M.D., Rochester.

"The Cell Count of Cerebro-spinal Fluids," Joseph Roby, M.D., Rochester.

"Eczematous Conditions in Infants and Young Children," Charles G. Kerley, M.D., New York.

"The Control of Infectious Diseases," J. Roberts Johnson, M.D., Syracuse.

Subject to be announced, Alfred Hand, Jr., M.D., Philadelphia, Pa. (by invitation).

Thursday, May 18th, 9.30 A. M.

"Typhoid Fever in Children," George C. Sincerbeaux, M.D., Auburn.

"A Scheme of State Control for Dependent Infants," William D. Chapin, M.D., New York (by invitation).

"Neurosis of Later Childhood in Relation to the Taking of Food," Herbert B. Wilcox, M.D., New York.

"Intestinal Parasites in Children," Alfred W. Armstrong, M.D., Canandaigua.

"The Early Diagnosis of Pott's Disease," Stephen L. Taylor, M.D., Kenwood.

SECTION ON PUBLIC HEALTH, HYGIENE AND SANITATION.

Chairman, Joshua M. Van Cott, M.D., Brooklyn.
Secretary, Henry G. Webster, M.D., Brooklyn.
Place of Meeting, Stock Room, United States Hotel.

Tuesday, May 16th, 2 P. M.

Joint Meeting with Sections on Medicine and Pediatrics.

Medical Examination of School Children.

"Some Practical Experiences in Medical Inspection," William A. Howe, M.D., Albany.

"The Neuropathic Child," Edward B. Angell, M.D., Rochester.

"The Vision of the School Child," F. Park Lewis, M.D., Buffalo.

"The Open Air School Child as a Type," Joseph C. Palmer, M.D., Syracuse.

"The Health of Rural Children," Thomas D. Wood, M.D., New York.

"Scope of Practicable Examination in Routine School Medical Inspection," Clinton P. McCord, M.D., Albany (by invitation).

"The Effect of Malformation and Infection of the Oral Cavity of the Child, Upon Its Future Health," Stephen Palmer, M.D., Poughkeepsie (by invitation).

Wednesday, May 17th, and Thursday, May 18th.

By-Laws, Chapter IX.

Section 3. The election of officers of sections shall be the first order of business of the afternoon meeting of the second day of each annual session. To participate in the election of any section a member must be registered with such section and must have recorded his name and address in the section registry.

Title to be announced, Alice Hamilton, Bureau of Labor Statistics, Chicago, Ill. (by invitation).

"Deaths from Chicken Pox, Measles and Mumps," Linsly R. Williams, M.D., Deputy Commissioner, Dept. of Health, State of New York, Albany.

"Welfare Work of the Metropolitan Life Insurance Company for Their Employees," Lee K. Frankel, Sixth Vice-President, Metropolitan Life Insurance Co., New York (by invitation).

Title to be announced, Benjamin C. Marsh, Executive Secretary, New York Congestion Committee (by invitation).

Title to be announced, William H. Woglom, M.D., Crocker Cancer Fund, New York.

"Experience in an Epidemic of Poliomyelitis," Joseph Roby, M.D., Rochester.

"Epidemic Poliomyelitis," Francis Eustace Fronczak, M.D., Health Officer, Buffalo.

"Health Center Field Work," Arthur C. Schaefer, M.D., Buffalo.

"Free Dispensary Features of Health Center Work," Walter S. Goodale, M.D., Supt. Bureau of Hospitals, Buffalo.

"The Education of Health Officers," Frank Overton, M.D., Patchogue.

"Contract Practice," John V. Woodruff, M.D., Buffalo.

"Will the Private Practitioner Determine the Future Public Health Work?" Haven Emerson, M.D., President, Department of Health, New York.

"The Relation of the Medical Profession to the State," Otto V. Huffman, M.D., Secretary of Faculty, Long Island College Hospital, Brooklyn.

"The Choice of Tuberculins," Benjamin F. White, Research Laboratory, Otisville (by invitation).

"An Efficient Culture Medium for the Isolation of Typhoid Bacilli from Stools, To be Read by Title," Oscar Teague, M.D., Director of the Laboratory at the New York Quarantine Station and A. W. Clurman (by invitation).

"Studies of the Recent Grip Epidemic in New York," Charles H. Nammack, M.D., Research Laboratories of the Department of Health, New York (by invitation).

ENTERTAINMENTS.

Tuesday Evening, May 16th.

Casino Building.

Reception to Governor Whitman and to the retiring president and the president-elect following the General Meeting.

Wednesday, May 17th, 8.30 P. M.

Casino Auditorium.

Smoker; instrumental music and an illustrated lecture, "A Hunting Trip to Alaska," by Arthur W. Elting, M.D., Albany.

ENTERTAINMENTS FOR WOMEN.

Auto trip to Lake Luzerne and Lake George; bridge party; afternoon reception and tea.

County Societies

MEDICAL SOCIETY OF THE COUNTY OF WESTCHESTER.

Annual Meeting, Yonkers, N. Y., Tuesday, January 18, 1916.

The meeting was called to order in St. Joseph's Hospital, and it was moved, seconded and carried that the following "In Memoriams" be sent to the State Society for publication in the Journal.

Erdmann N. Brandt, M.D.

Erdmann N. Brandt, a practitioner of Tarrytown and a member of our County Society, was a graduate of the Medical Department of Columbia University, the College of Physicians and Surgeons, Class of 1889.

He passed away at his home, December 23, 1915, from a short illness of ten days—pneumonia, following an attack of the grippe. He was born in Hamburg, Germany, forty-eight years ago. He came to this country with his parents when a boy.

He was a member of the Medical Staff of the Tarrytown Hospital and an active member of the Westchester County Medical Society.

He was well liked by every one, and had a large practice. His jovial good nature made him many friends. His sudden demise was a sad blow to his patients and friends.

Valentine Browne, M.D.

Dr. Valentine Browne, a practitioner of Yonkers, and a member of our County Society for many years, was a graduate of the New York University Medical Department, the Class of 1875. Died at his home November 19, 1915, at the age of 83 years. He had mostly retired from active practice.

He was a member of the Westchester County Medical Society, the State Medical Society and a former fellow of the American Medical Association; consulting physician to St. Joseph's Hospital and formerly physician to Mount St. Vincent and the Seminary.

A good citizen and neighbor, and beloved practitioner.

Norton Jerome Sands, M.D.

Dr. Norton Jerome Sands, a Fellow of the American Medical Association and a member of the New York State and County Societies, died at his home in Portchester, New York, on the 13th of November, 1915.

Dr. Sands was born October 6, 1845, in Portchester, the son of Dr. D. Jerome and Ann M. Sands. He attended the local schools in his boyhood and later the Columbia Grammar School, but it is probable that during this period he learned more outside of school than in it.

Developing early a pronounced scientific and inventive bent, he conducted at home in his own laboratory, over a considerable period, a series of experiments in physics and in chemistry. In the latter subject, he stated that he covered the entire field of organic chemistry as it was then known, working by himself, and later when his class in college studied the subject, he was able to pass the examination without having attended a single lecture.

His studies in physics were chiefly in mechanics, both theoretical and practical, and in this branch of science he retained his interest all his life.

His early training developed those powers of accurate observation and deduction which made him later so skillful a diagnostician, while his cleverness in the use of tools and his aptitude for fine work with his hands, foreshadowed his success in surgery.

A further indication of his intellectual inclinations was his fondness for mathematics, and it is worthy of note that a large portion of his free hours during the last year or two of his life was spent in the preparation of a more accurate table of logarithms. Though it is evident from these facts that his tastes were mainly those of the student, he was full of youthful enthusiasms: he loved life and human companionship.

When the Civil War broke out he was fifteen years of age, but as the struggle went on it was only the restraining influence of his parents which prevented him from joining the army and toward the end of the war even this was without avail, for he ran away from home and enlisted in the 15th Regiment of the New York State Militia. He never, however, saw active service, as the war ended a few weeks later, but he always retained a certain pride in his brief connection with the army and an intense and loyal devotion to his country.

The year of his discharge from the army, in the fall of 1865, he entered the College of Physicians and Surgeons, of New York and was graduated from this institution in 1868.

His marriage took place soon after his graduation and he settled down to the practice of medicine in his native town.

There was never probably a physician better fitted for his calling than he. His success was phenomenal and it was due not only to his professional skill but also to his personal characteristics. He had a warm and sympathetic nature, a keen sense of humor, a persistently cheerful outlook on life: and none of the inevitable disappointments in events and in individuals made him lose his sense of buoyant optimism and his love for his fellow men.

It was these traits which endeared him to his patients and made his patients his friends. For forty-seven years he lived literally a life of service; his time was always at the disposal of others and it was given without complaint, day and night, to the rich and the poor. His first thought was the good of the patient, and his last one his own health or credit, advancement or reward.

In a profession in which competition is keen and the tendency too often to commercialization, his example shines as a beacon light to the coming generation.

His wife, M. Evelyn Sands, and three children, Dr. Benjamin Jerome, Dr. Georgiana and Miss Adelaide G. Sands, survive him.

Edward F. Sheehan, M.D.

Dr. Edward F. Sheehan was born at North Creek, N. Y., July 13, 1863; graduated from Albany Medical College, receiving his degree in the spring of 1888.

He began the practice of medicine in Schuylerville, N. Y.; after two years removed to Ossining, N. Y., where he continued to practice until he died, April 25, 1915.

Dr. Sheehan was a successful practitioner and a surgeon of ability. He took an active interest in politics and was well and widely known because of his activities in the political affairs of the town, county and state.

His widow and two children survive him.

George Nelson Tompkins, M.D.

It is the sad duty of the Committee on Necrology to report the death of one of the promising younger members of the Society, which has occurred since the last meeting. Dr. George Nelson Tompkins, of Croton-on-Hudson, who died on Thursday, December 23d, of pneumonia following grippe, contracted in the early part of the present epidemic.

Dr. Tompkins was the son of Mr. and Mrs. Albert Tompkins, and was born in Ossining 36 years ago. He was educated at the public schools and afterward graduated from Mt. Pleasant Academy. He studied medicine at the Cornell University Medical School and began practice about eleven years ago. He had a year's experience in St. Joseph's Hospital and was for a time with Dr. M. W. Barnum of Ossining. Ten years ago he went to Croton and rapidly built up a large practice, winning the esteem and confidence of all with whom he came in contact.

Besides his parents he leaves a wife, who was Miss Helen Coggeshall, and two brothers.

Dr. Tompkins' death is especially pathetic because a week after, a little daughter, his first child, was born at the hospital in Ossining.

SCIENTIFIC PROGRAM.

"Treatment of Convalescents at Campbell Cottage," Louis B. Chapman, M.D., White Plains.

A New Hemorrhoidal Operation, "The Snare and Bullet," Waters F. Burrows, M.D., Bronxville.

Contributions from the Attending Physicians and Surgeons of St. Joseph's Hospital, consisting of a short talk relating to the New Clinic for Mental Diseases, by Henry Moffat, M.D., Yonkers.

A talk was also given by Mr. George A. Hastings of the State Charities Aid.

Through the courtesy of Sister Mary Louise a buffet lunch was served after the meeting, which was enjoyed by all present.

BRONX COUNTY MEDICAL SOCIETY.

Annual Meeting.

January 12, 1916.

After calling the meeting to order in Ebling's Casino, the following officers were installed.

President, John E. Virden.
First Vice-President, J. Lewis Amster.
Second Vice-President, Edward F. Hurd.
Secretary, Herman T. Radin.
Treasurer, Philip Eichler.
Board of Censors: William G. Eynon, Maximillian Zigler and Simon M. Jacobs.
Delegates: Henry A. Dodin and Edmund E. Specht.
Alternate Delegates: John J. Decker and William A. Randel.

At the close of the executive session Dr. Charles H. Mayo of Rochester, Minn., read a most interesting paper on "Gall Bladder Diseases, Etiology, Symptoms and Treatment," with accompanying stereopticon views. The scientific session was attended by six hundred physicians and surgeons from different parts of Greater New York and vicinity.

A discussion of Dr. Mayo's paper was participated in by Drs. Charles H. Peck, Charles A. Elsberg, Franz Torok, Irving S. Haynes, Robert T. Morris, Benjamin T. Tilton, John Rogers, William P. Healy, Parker Syms, Henry Roth, J. Lewis Amster and others. A supper in honor of Dr. Mayo followed the scientific meeting.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A Practical Treatise on Infant Feeding and Allied Topics for Physicians and Students. By Harry Lowenburg, A.M., M.D., Assistant Professor Pediatrics, Medico-Chirurgical College, Phila. Illustrated with sixty-four text engravings and thirty original full-page plates, eleven of which are in colors. Price, $3.00 net. F. A. Davis Co., Publishers, Philadelphia, Pa. English Depot, Stanley Phillips, London. 1916.

Painless Childbirth, Eutocia and Nitrous Oxid-Oxygen Analgesia. By Carl Henry Davis, A.B., M.D., Associate in Obstetrics and Gynecology, Rush Medical College, Chicago University; Assistant Attending Obstetrician and Gynecologist Presbyterian Hospital, Chicago. Forbes & Co., Chicago, 1916. Price, $1.00.

A Treatise on the Principles and Practice of Medicine. By Arthur R. Edwards, M.D., Professor Principles and Practice Medicine and Clinical Medicine and Dean of the Northwestern University Medical School, Chicago. New (third) edition, thoroughly revised. Octavo, 1,022 pages, with eighty engravings and twenty-three full-page plates in colors and monochrome. Cloth, $6.00 net. Lea & Febiger, Philadelphia and New York. 1916.

A Manual of Hygiene and Sanitation. By Seneca Egbert, M.D., Professor of Hygiene and Dean of the Medico-Chirurgical College, Philadelphia. New (6th) edition, thoroughly revised. 12mo, 525 pages, with 141 figures and five plates. Cloth, $2.25 net. Lea & Febiger, Philadelphia and New York. 1916.

An Autobiography. By Edward Livingston Trudeau, M.D. Octavo, 322 pages. Illustrated. Cloth $2. Lea & Febiger.

Obstetrics. A Practical Text-Book for Students and Practitioners. By Edwin Bradford Cragin, A.B., A.M., (Hon.) M.D., F.R.C.S.; Professor Obstetrics and Gynecology, College Physicians and Surgeons, New York; Attending Obstetrician and Gynecologist Sloane Hospital for Women; assisted by George H. Ryder, A.B., M.D., Instructor in Gynecology, College of Physicians and Surgeons, New York; Assistant Attending Obstetrician, Sloane Hospital for Women; Octavo, 858 pages, with 499 engravings and thirteen plates. Cloth, $6.00 net. Lea and Febiger, Philadelphia and New York.

Book Reviews

1914 Collected Papers of the Mayo Clinic, Rochester, Minn. Octavo of 814 pages, 349 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $5.50 net; half morocco, $7.00 net.

Volume VI represents the indexed collection of reprints for 1914 and a few which appeared in 1915. The aim adopted in the previous edition to bring the work up to date is commendable. For the most part text-books on surgery are at least a year behind the times in many respects when they are published. In these contributions we have the latest surgical meat. They are therefore invaluable and might well replace many of the text-books as reference works for students and surgeons.

To pass judgment in a detailed manner upon the entire contents of this book, entails a critique of about eighty papers by about thirty writers. It is a bewildering task which the reviewer has not the temerity to undertake in limited space.

The usual grouping of papers under heads, alimentary canal, uro-genital organs, ductless glands, head, trunk, extremities, technic, and general papers is followed.

The work represents a personal surgery of the highest order of merit and of course is for the most part from the pens of W. J. and C. H. Mayo. Much praise is due Carman for his painstaking work on X-ray diagnosis, to Wilson and his co-workers for thoughtful pathological research and to the many other collaborators for their earnest endeavors.

Mrs. Mellish makes timely suggestions to writers of medical papers. A crusade against the improper use of English as a means of conveying pure medical thought is not amiss.

These volumes should be upon the shelves of every thoughtful student of surgery. They are indispensable handbooks.

Royale H. Fowler.

The Origin and Nature of the Emotions and Miscellaneous Papers. By George W. Crile, M.D., Professor Surgery, School of Medicine, Western Reserve University, Cleveland. Octavo volume, 240 pages, 76 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $3.00 net.

This volume is presented as a supplement to those articles of an allied nature which have already been published and as a preface to monographs in preparation. Dr. Crile believes in keeping the pot boiling. His last book was "Anocci-Association," upon which we have already passed judgment in this department.

The book under consideration contains eight essays which have appeared elsewhere in print. They are: Phylogenetic Association in relation to certain Medical Problems, Phylogenetic Association in relation to the Emotions, Pain, Laughter and Crying, the Relation between the Physical state of the Brain Cells and Brain Functions, A Mechanistic View of Psychology, A Mechanistic Theory of Disease, The Kinetic System, Alkalescence, Acidity, Anesthesia.

Opinion has already largely been formed concerning these addresses. The first was delivered as the "Ether Day" Address at the Massachusetts General Hospital in 1910. Many of us heard Crile speak on "The Kinetic System" included here upon the occasion of the meeting of the Medical Society of the State of New York in April, 1914.

Crile's doctrines have been variously judged. We feel that however small the store set on his theories we must accord great value to the practical results which have followed them.

Royale H. Fowler.

A Text-Book of Pathology. By Alfred Stengel, M.D., Sc.D., Professor Medicine, University Pennsylvania; Physician to the Pennsylvania and the University Hospitals; and Herbert Fox, M.D., Director of the Pepper Laboratory of Clinical Medicine, University of Pennsylvania; Pathologist, Philadelphia Zoölogical Garden. Sixth edition, reset. Philadelphia and London. W. B. Saunders Co. 1915.

The recent edition is a marked advance for this text-book. Some previous editions have lagged a bit. They have been a few steps behind the pathology of the day. It may be said without reflection on Alfred Stengel, that the collaboration of Herbert Fox has added appreciably to the value of the work and given it a rather unique place in the literature of pathology. The mind trained in the laboratory details of modern pathology, has been needed in Stengel's pathology and is now supplied. On the other hand, in these days when the laboratory is being so completely separated from the clinic it is refreshing and instructive to read a pathology in which the master mind still bridges that gap and serves laboratory facts in a fashion pleasing to practical palates. The Stengels and Delafields and Pruddens—the bedside pathologists—it appears, are soon to be but a memory of days when pathology was young and medicine less exact. The time seems well nigh past when a man may be a professor of medicine and also write text-books on pathology. When it is past, probably we shall have gained something. But assuredly we shall have paid a price for it. And the price we pay will be in the loss of that group of men who, with one hand on the test tube and the other on the pulse, tempered laboratory reaction with clinical experience and went about doing good.

This sixth edition is a large book of over a thousand pages. The sections on Inflammation, Retrogressive Processes, Disorders of Nutrition and Metabolism, General Etiology and Diseases due to Bacteria have been very largely recast or almost wholly rewritten. A new section on Transmissible Diseases has been added. The Glands of Internal Secretion and their pathology have been made the subject of a separate chapter. The omission of the chapter on Technic, present in previous editions is well advised, because the necessary brevity of such a chapter deprives it of practical usefulness.

Many new and excellent illustrations—upward of one hundred in black and white or color—have been added. The authors and publishers are to be commended for a very earnest effort to bring the book abreast of its contemporaries.

T. H. Dexter.

Local and Regional Anesthesia, including Analgesia. By Carroll W. Allen, M.D., Tulane University, New Orleans, introduction by Rudolph Matas, M.D., Tulane University, New Orleans. Octavo of 625 pages, with 255 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, $6.00 net; half morocco, $7.50 net.

The proportion of operators who possess the knowledge, patience, gentleness and thoroughness necessary for an efficient use of local anesthesia is unaccountably small.

This work by Carroll W. Allen presents in practical form the knowledge. The other attributes await our acquirements when conviction as to the growing field of usefulness of local anesthesia prompts us to try it.

General anesthesia under the best of circumstances cannot be said to imply more than reasonable safety nor less than well recognized morbidity. It may be "good enough" for some but never invariably the best for the conscientious operator. The man who uses general anesthesia to operate a scrotum in an adult needs to take account of stock.

Regardless of the proportion of truth that exists in an afferent nerve assault or kinetic theory of shock, the practical application of the idea brings into practice a substitution of efficient local anesthesia supplemented by an atoxic superficial general narcosis and relegates to the rear the deeper toxic grades of general anesthesia. The favorable results obtained in this technic bespeak as much in favor of a skillfully conducted local anesthesia as they do for the theory complex of anocci-association.

In a work thoroughly comprehensive and carefully detailed, Dr. Allen here presents the history, pharmacology, application and regional anatomy of local anesthesia. Even though the more complex operations described may require the skill of Mitchell, Hertzler, Matas, or the author to make them practicable, there still remains a larger field for local anesthesia than the practice of most surgeons would indicate. Ninety-five pages are devoted to the agents used in local anesthesia and fifty-one to general technic. Intra-arterial and intravenous, intraspinal, paravertebral and parasacral technic are well presented in separate chapters.

The chapter on dental analgesia recommends the work to dental surgeons as well as to the general surgeon.

The regional anatomy necessary for successful blocking is particularly well illustrated and described.

There exists in America no surplus of works on local anesthesia and there seems to be at least a need for this one good book by Dr. Allen.

William C. Woolsey.

A Practical Text-Book of Infection, Immunity and Specific Therapy (With Special Reference to Immunologic Technic). By John Albert Kolmer, M.D.; Instructor Experimental Pathology, University Pennsylvania; Professor Pathology and Bacteriology, Philadelphia Polyclinic, and Pathologist Department of Dermatologic Research; Pathologist Philadelphia Hospital Contagious Diseases. First Edition. Philadelphia and London. W. B. Saunders Co. 1915.

This is a very substantial book in size and dress and contents. The preface states that the purpose of the treatise is threefold, namely:

1. To give to practitioners and students of medicine a connected and concise account of our present knowledge, regarding the manner in which the body may become infected, and the method in turn by which the organism serves to protect itself against infection or strives to overcome the infection if it should occur; and also to present a practical application of this knowledge to the diagnosis, prevention and treatment of disease.

2. To give physicians engaged in laboratory work and special workers in this field a book to serve as a guide to the various immunologic methods.

3. To outline a laboratory course in experimental infection and immunity for students of medicine and those especially interested in these branches.

The author assuredly has fulfilled the last two purposes, and that is sufficient to more than justify the work. The failure in his first and very laudable purpose, that of lighting a lamp for the general practitioner, is such a common failure in books on this and allied subjects, that he does not attain any unfavorable distinction by it.

The volume as a whole is a product of painstaking well directed effort on the part of one well trained in laboratory methods and in the scientific grouping of facts for the purpose of imparting knowledge. From laboratory men who have arrived, or who are in the making, the book should receive a hearty welcome. The scope of the work is sufficiently indicated in the extract from the preface of (vide supra).

T. H. Dexter.

Ten Sex Talks to Boys (ten years and older) and Ten Sex Talks to Girls (14 years and older). By Irving David Steinhardt, M.D., Instructor Clinical Surgery and Assistant Surgeon, Cornell Medical School. With twelve illustrations. J. B. Lippincott Company, Philadelphia.

These ten sex talks to girls of fourteen and older, and ten sex talks to boys of ten and older, were prepared for and delivered before various Hebrew societies in New York City. The former were originally published in the New York Medical Journal, and the latter in *Pediatrics.* They seem to have been well adapted for the specific purpose intended, and served, and will doubtless prove useful to other lecturers called upon to discuss these delicate subjects before similar organizations.

The author makes an especially strong plea against the double standard of morals, and also emphasizes the innocuousness of continence in men and women, to which teaching the Freudians, we suppose, would object, since they ascribe nearly all the nervous and mental ills of mankind to suppression, or repression, of the sexual instinct. Where does the truth lie, with respect to the latter question? If the Freudians are right, why could not sexual hygiene *truth* still be taught, with the moral issue presented as Talmey presents it, namely, that no matter at what cost no sexual harm must be done another. This seems to us the highest moral teaching, and rests itself upon the most rational grounds, essentially sound character and the truest principles of ethics. We must conform our teachings with physiologic truth, no matter what that truth may be.

A. C. J.

Abdominal Operations. By Sir Berkeley Moynihan, M.S. (London), F.R.C.S., Leeds, England. Third edition, entirely reset and enlarged. Two octavo volumes totaling 980 pages, with 371 illustrations, 5 in colors. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, $10.00 net; half morocco, $13.00 net.

These two volumes total 980 pages and contain 371 illustrations, 5 in colors. In this work the author has adhered to his original idea and has described those operations and procedures which are practiced by him. No gynecologic operations are included or other technical methods not common to both the sexes.

The scope of this work is much broader than the title would appear to indicate; it includes bacteriology, pathology, and methods of preparatory and after-treatment.

The interval between the publication of the present edition and that preceding has necessitated a good deal of revision; much indeed has been entirely rewritten and the work has been admirably brought abreast of the times.

The author pays graceful tribute and makes grateful acknowledgment to American Surgery in prefacing his work. In this respect a breadth of mind is exhibited which has rarely been shown in the past in the writings of foreign authors. Through his visits to our clinics he is thoroughly familiar with the work of American surgeons as evidenced by the host of references in his book.

It is to be regretted that footnotes are not more frequently substituted for the parenthetically placed references. The book would be very much more readable if one's train of thought were not thus interrupted in the midst of a sentence by these interpolated bibliographic notes.

Volume I contains three sections: General Considerations, Operations upon the Stomach, and Operations upon the Intestines.

Volume II continues the Operations upon the Intestines, and also includes Operations upon the Liver, Pancreas, and Spleen.

In the consideration of acute peritonitis it would seem that the treatment by auto-postural drainage should receive more than passing mention. The elevated head and trunk position should be employed not only to limit peritonitis after operation, but as a preventive measure before operation in cases of suspected appendicitis or other abdominal lesion which may eventuate in peritonitis.

Dr. Moynihan has produced a splendid work. Operations for various conditions are carefully and wisely selected. To fully grasp the work of this master surgeon one must witness his handicraft in order to appreciate that dainty fastidiousness of technic which he urges be cultivated.

R. H. Fowler.

Health Through Diet. A Practical Guide to the Uric Acid-Free Diet. Founded on eighteen years' personal experience. By Kenneth G. Haig, L.R.C.P., Lond., M.R.C.S., Eng. Assisted by Alexander Haig, M.A., M.D., Oxon. Philadelphia, J. B. Lippincott Company, London, Metheun & Co., Ltd., 1914.

The author of this little book is the son of Alexander Haig, whose writings on uric acid have been familiar to the medical public for many years. The book presents in a very readable form the Haigian views. It tells just what the uric acid-free diet is, and in detail, with specific dietetic prescriptions. It discusses with much intelligence various articles of food; tells how the author gets his patients to change their diet, which is by gradual method; tells some of the author's personal experiences; and gives some general directions for feeding in disease. Altogether, it is impossible to refrain from giving this book a warm word of praise even though we may not agree with quite all of its statements.

E. E. Cornwall.

In Memoriam

DR. HENRY L. ELSNER.

Dr. Henry Leopold Elsner, professor of medicine at Syracuse University, died very suddenly, of heart failure, in his apartment at the Highlands, Washington, D. C., on February 17, 1916. Dr. Elsner had been in failing health for some time past and had been resting in Washington in company with his wife. He was born at Syracuse, N. Y., on August 15, 1855, and after taking his medical degree at the College of Physicians and Surgeons, New York, in 1877, did post-graduate work in Vienna. Returning to his native city in 1880, he became lecturer on clinical medicine in the Medical Department of Syracuse University in 1881, eventually becoming professor of medicine. On January 5, 1881, he married Miss Pauline D. Rosenberg, of Rochester, N. Y., who survives him, with a son. He was physician to the St. Joseph's Hospital and director of its Dispensary Medical Clinic, also consulting physician to the Women's and Children's Hospital, the newly established University Hospital and similar institutions of his city; also an ex-president of the New York Medical Association, the Medical Society of the State of New York, the Syracuse Academy of Medicine and the Onondaga Medical Society, and a member of the New York Academy of Medicine and many other medical societies, clubs and fraternities. Dr. Elsner was one of the best known clinical teachers in this country and the most prominent physician in northern New York. His consulting practice covered a wide radius and made him known all over the State. He was a man of extremely refined, genial and lovable disposition, charitable to a fault, and denying himself to no patient, however humble, or at whatever hour. His exertions in this regard eventually told upon his health, as did the arduous labors upon his massive treatise on Medical Prognosis, which he prepared for the press in the Surgeon General's Library in 1915, and will shortly appear. This work, richly stored with the fruits of his wide clinical experience and his unusual knowledge of the texts, will be a monument to his memory in the eyes of his colleagues, many of whom were also his loving friends. His death will leave a void in the lives of hundreds of patients, to whom he was, in the truest sense, the beloved physician. His pupils, whom he regarded as a father his sons, will lose a sincere, loyal and helpful friend.

Deaths

Allen E. Baker, M.D., Auburn, died December 15, 1915.

Bentley S. Bourne, M.D., Hamburg, died December 25, 1915.

J. D. Bryant, M.D., Kingston, died January 13, 1916.

Edgar D. Coonley, M.D., Port Richmond, died February 10, 1916.

Henry L. Elsner, M.D., Syracuse, died February 17, 1916.

Theodore Keune, M.D., New York City, died February 25, 1916.

William Irving Thornton, M.D., Buffalo, died January 16, 1916.

Dr. Wisner Robinson Townsend

NEW YORK STATE JOURNAL OF MEDICINE

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EDITORIAL DEPARTMENT

DR. WISNER R. TOWNSEND

THE sad news of the tragic death of Dr. W. R. Townsend cast a feeling of sorrow mingled with amazement over the medical profession of the State and even reached to the confines of our land where his personality and activities were known.

In every association of men imbued with a spirit of human progress through the dissemination of knowledge within its own realm of thought there will be found a few men who by reason of some innate power rise above the others and become leaders—such a man was Dr. Townsend within his sphere of action. He possessed no transcendent ability in any one field of endeavor but he did possess manhood in the true acceptation of the term. His high sense of honor and sterling honesty won the confidence of all men with whom he had professional, political or business relations. With an indomitable will to succeed in the pursuit of an end which he deemed just he was most susceptible to reason and most gracious in acknowledging error. A strong and positive man will always make enemies—but here it would be better for us to use the word opponents. While of the latter he had many in some of the policies he advocated, of the former he had none, for after the ardor of contention was over and the unstudied words of debate regretted, Dr. Townsend, whether the aggressor or the aggressed, would be the first to extend the hand of conciliation and say—" 'Tis all over. You have beaten us. We wish you success."

Members of our national and state medical societies know the untiring energy with which Dr. Townsend performed his official duties and how in his moments of relaxation he became the most genial of men, overflowing with humor and scintillating with wit which left no sting. His exuberant virility and breeziness of manner left with many a misconception of the man. We knew him as few others did and from this knowledge of the inner man our friendship grew and increased with association. We broke bread at his table and he at ours. We traveled long distances together, lived in the open, fished and sailed together, and you will understand him better now that he has left us when we tell you that beneath the cloak of conventionality he was but a great big-hearted boy—filled with noble and generous impulses, with a soul soaring above material interests into the pure atmosphere of the spiritual where the ego was lost in universality. His lips were as clean as his heart. His conversation intellectual, bright and clever, courteous to a degree short of affectation with just sufficient ruggedness to bespeak its true sincerity. His devotion to his family ideal. As a husband he remained the devoted suitor. As a father—a companion to his sons. Take him all in all you might admire a more able man, you could not love a better one.

His life was sweetened by the cripples' cry of pain,
And his compassion on them fell
Like April rain upon the crippled earth,
To bring back joy to life again.

Wisner Robinson Townsend, born on Staten Island, August 5, 1856, the son of Wisner Helme and Emily Kyle Townsend.

He was educated at Columbia University, receiving the degree of A.B. in 1877, A.M. in 1880 and M.D. from the College of Physicians and Surgeons in 1880.

The most notable accomplishment of Dr. Townsend was the part he played during an era of fraternal strife in the State Medical Society, 1904 and 1905. Within the memory of most of us is the unfortunate division in the ranks of the medical profession into two parties over the question of ethics. The Medical Society of the State of New York caused certain changes to be made in its Code of Ethics "which in effect removed the barrier dividing members of the regular profession from irregular practitioners." The effect of the adoption of this new code disfranchised the Medical Society of the State of New York from its affiliation with the American Medical Association at home and abroad. A large number of members of the society who refused to abide by its decision on the ground that they did not want to be placed in a false position—disloyal to the National Code of Ethics—seceded and formed a new organization known as The New York State Medical Association. As we look back now it is difficult to understand the intense bitterness that existed between the two organizations. In 1902 leading men of both parties, disgusted with the unenviable position of the profession at large, appointed committees to endeavor to bring about a unification of the profession of the State. This unification was rendered more propitious by the action of the American Medical Association at a meeting held in New Orleans where the Principles of Ethics were substituted for the old Code of Ethics, these to be "suggestive and advisory." The accomplishment of the amalgamation of the Medical Society and the New York State Medical Association was largely due to the untiring energy and tact of Dr. Townsend. Through his sagacity and close personal friendship with all the members of the Joint Committee of Conference, he was able to instil a conciliatory feeling among its members. An Agreement and By-Laws were drawn and the consolidation took place on December 9, 1905. In appreciation of the work which he had done as Secretary of the Joint Committee of Conference, the amalgamated societies elected him Secretary at their first meeting in 1906. This office he held continuously until the time of his death.

Among his other activities he served on the Second Surgical Division of Bellevue Hospital from which he graduated on October 1, 1881. He was President of the Society of Alumni of Bellevue Hospital 1892-1893; Member of the Board of Trustees of the American Medical Association 1908 to 1911 and Secretary of this Board in 1910 and 1911; Second Vice-President of the American Medical Association, June, 1914 to 1915; Secretary of the Faculty of the New York Polyclinic Medical School and Hospital, 1896-1904; Second Vice-President of the American Orthopedic Association, 1896, First Vice-President in 1897 and President in 1898; Member of the Executive Committee of the Congress of American Physicians and Surgeons, 1901-1908; Fellow of the New York Academy of Medicine for many years and Secretary of the Board of Trustees at the time of his death; Fellow of the American College of Surgeons.

Dr. Townsend was Associate Surgeon, Hospital for Ruptured and Crippled; Consulting Orthopedic Surgeon, French Hospital, Manhattan Maternity and Dispensary, United Hospital, Port Chester and S. R. Smith Infirmary, Tompkinsville.

HEALTH INSURANCE.

THERE does not seem to be a clear conception on the part of the medical profession of the meaning and extent of the proposed new Health Insurance law—nor of its origin, purpose, or of its administrative policies. It has been suggested that the JOURNAL publish each month analytical comments, clearly and succinctly expressed, so that this somewhat involved subject be made instructive and at the same time attractive to the reader.

The Social Insurance Committee which prepared the material incorporated in the Health Insurance Bill was a committee appointed by a scientific society known as the American Association for Labor Legislation, whose aim is to study conditions impartially; to investigate the operations of existing systems of insurance, to prepare carefully needed legislation and to stimulate intelligent discussion on the subject. A prevalent error is that the proposed law had its inception in the council of the trade union labor organizations, as was the workmen's compensation law; that the medical profession was ignored in considering its provisions and that in its present status it would prove injurious to the profession. The foundation upon which a structure is built determines its value. To appreciate properly the basic principles of the Health Insurance Act it would be well to consider the personnel of the committee. If we find them men possessing eminent attainments, holding positions of a high degree in institutes of learning and actuated by unselfish motives, it will satisfy us that the result of their labor is worthy of praise, and considering the edifice, which they have constructed (admitting many interior designs as it progresses toward perfection), we can well accept their initial performance with satisfaction. Especially so since the committee gives evidence of desiring to conform to the wishes of the medical profession in matters pertaining to its special administrative policies.

COMMITTEE ON SOCIAL INSURANCE OF THE AMERICAN ASSOCIATION FOR LABOR LEGISLATION.

Edward T. Devine, Chairman—Director, New York School of Philanthropy. Professor, Social Economy, Columbia University.

Miles M. Dawson—Consulting Actuary. (Member of New York Bar.)

Carroll W. Doten—Secretary, American Statistical Association. Professor, Economics and Statistics. Chief Investigator, Massachusetts Commission on Compensation for Industrial Accidents.

Sigismund S. Goldwater—Formerly Commissioner, Department of Health, City of New York.

Henry J. Harris—Chief, Division of Documents, Library of Congress. Author, "Industrial Accidents and Loss of Earning Power: German Experience."

Alexander Lambert—Attending Physician, Bellevue Hospital. Professor, Clinical Medicine, Cornell University.

Henry R. Seager—President, American Association for Labor Legislation. Professor, Economics, Columbia University.

Lillian D. Wald—Head Resident, Henry Street Settlement ("Nurses' Settlement").

John B. Andrews, Secretary—Secretary, American Association for Labor Legislation. Associate Editor, Documentary History of American Industrial Society.

BEAR IN MIND THE SARATOGA MEETING OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK

The Annual Meeting of our State Society will be held in Saratoga May 16th, two weeks later than the usual date. It has been the earnest aim of your executive body to have this convention an unqualified success. The plans which have been for months carefully formulated are now complete, and Saratoga awaits your presence.

The Scientific Program terminates Thursday noon, making the period sufficiently short to induce as many members as possible to remain through the entire session. The sections will be easily accessible and the papers and discussions of the most advanced standard.

The mouth of May brings added natural charm to Saratoga, and its facilities to cater to our every want should be an added appeal to our duty and obligation.

Recreation and work have been so harmoniously combined by the Committees in charge that the meeting offers an alluring intellectual recreation to the physician wearied by the winter's work. W. STANTON GLEASON, M.D.

Original Articles

BLADDER IRRITATIONS AND INFLAMMATIONS IN WOMEN.*

By HERBERT NORTHRUP SQUIER, M.D.,
UTICA, N. Y.

THE frequent and often tedious cases of bladder irritation and inflammation which we are constantly encountering in our daily practice form a group which often taxes our utmost ingenuity and patience to overcome, as well as the confidence and faith of our clients in our ability. Many of these cases are seen to drift from one doctor to another without deriving any particular benefit.

It would seem then that a better and more thorough understanding of the causative factors and resulting lesions should be ours, as well as the most beneficial method of treatment.

With the advent of the modern cystoscope we have added vision to our means of diagnosis, whereby the location, extent, and characteristics of the lesions are as easily diagnosed as in the oral or nasal cavity. The ureteral catheter is also of inestimable value in running down the source of trouble. (It is folly to expect to heal a tubercular cystitis if the source is in one or both kidneys.)

The mucous membrane of the bladder is prone to all the pathological lesions common to the other orifices of the body. The extent, character, and degree of these lesions are not materially affected by their being constantly bathed in the urine passing over them, with the exception that under certain conditions, the lime salts, phosphates, and urates are deposited on the eroded surfaces, changing their appearance. This is, however, simply a mechanical difference.

Pathological processes may exist as the result of new lesions, changes in the blood supply, infection, or as the result of injury, either mechanical, thermal, or chemical. Benign or malignant tumors, foreign bodies, cysts, vesicles, and abnormalities in development may frequently be encountered.

The situation and distribution of disease in order of their frequency are as follows: The vesical neck, the trigon, the base of the bladder, the ureteral openings, the fundus, the lateral walls, and the vortex.

Any portion of the bladder may be the site of disease. One portion may be acutely inflamed and the remainder perfectly healthy. There may be a single point of infection, or there may be multiple foci, with areas of healthy tissue between. An area diametrically opposite a point of infection, which comes in contact with it when the bladder is empty, may become similarly involved.

In this short paper I will not attempt to enlarge on all of the pathological lesions common to the bladder, but will confine myself to the most frequent sources of trouble and their characteristics.

Hyperemia may be active or passive. Active hyperemia arises from bruising, action of heat, irritating drugs, beginning or receding stages of inflammation. Passive hyperemia arises when the flow of blood in the veins is obstructed, causing blood stasis, as in compression due to thrombosis, pregnancy, and pelvic tumors. Edema and swelling are secondary to changes in the blood supply, pressure, and inflammatory changes.

(*a*) Edema bullosum is associated with some form of pressure or irritation. (Seen opposite to tubercular ulcer, around the vesical neck or fistulous tract, in cases of intense inflammation, and in carcinoma.)

(*b*) Edema of the trigon is the lesion found most frequently in the irritable bladders of women. It is caused usually by extra vesicular pressure, as in anti-version or flexion of the uterus, or in retroversion with a long cervix pressing up on the base of the bladder, or by impacted feces.

The symptoms of these conditions, when uncomplicated by severer lesions, vary from a slight burning sensation at the end of micturition to marked pain, polyuria, strangury and tenesmus, especially when encountered in a neurasthenic patient. The urine, however, is free from pus and bacteria.

Cyst formation, the origin of which is unknown, is occasionally seen on the trigon. Distension crypts and retention cysts are frequently encountered about the vesical neck. Congenital deformities and diverticulae are also met with.

Inflammations of the Bladder.—Cystitis: An inflammation of the bladder caused by micro-organisms. It is associated with the discharge of pus and sometimes blood in the act of urination. Urination is increased in frequency and is painful.

Classifications: First.—According to the intensity of the disease. It may be so mild as to escape the notice of the patient, or it may be so intense as to make life miserable.

Second.—Into acute, sub-acute, and chronic forms. The acute is characterized by sudden onset with great intensity of symptoms, but it is short in duration, passing soon into the subacute and chronic forms. In the chronic form the onset may come on slowly and be chronic from the first.

Third.—Character of the infection: Tubercular, gonorrheal, colon bacillus, proteus vulgaris, streptococcus, and staphylococcus.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 27, 1915.

Fourth.—According to the portal of infection. Primary when infection is direct from blood stream; secondary when the organism proceeds from a foci in some other organ, as from the kidney, or from fallopian tube.

Fifth.—According to direction in which it progressed. Ascending when the infection is introduced from below, passing from the urethra upward; descending, when it is introduced from above, as from kidney downward.

Etiology.—The most common source of infection is the urethral catheter when employed in puerperal and post-operative cases, for pelvic operations and parturition often produce irritation, bruising, or other damage to the bladder; this, taken with the lowered resistance of the patient at that time, renders infection a very easy matter, even when the most careful technique is used in passing the catheter.

The colon bacillus is the most common organism of infection; however, the other organisms may be introduced in the same manner. A latent gonorrheal urethritis may be the source of a similar involvement of the bladder, the infection being a direct extension, or carried in by the catheter.

A latent cystitis is not infrequently encountered in patients systematically examined before operation. Recognition of these cases is very important, for it relieves the surgeon of responsibility in the event of an exacerbation during convalescence.

Pathology.—The lesions of cystitis may be general or local. An acute infection usually starting in the region of the trigon and spreading fan shaped involving the remaining surface; locally characterized by swelling and redness of the mucous membrane with erosions and possibly small ulcerations. In the chronic form the lesions are more frequently patchy; the foci being single or quite numerous, with areas of healthy tissue between. Located most often about trigon and base of bladder.

Symptoms.—Frequent urination is one of the cardinal symptoms, and there is no true cystitis without it. Yet, on the other hand, there may be urgent and frequent desire to urinate without any cystitis at all, as in edema of the trigon and in neurasthenic patients. Do not make a diagnosis of cystitis on frequency of urination alone. The frequency may vary from once an hour to every ten or fifteen minutes, day or night, on to a constant tenesmus and strangury. The desire to void oftener than usual is, as a rule, the first symptom noted, and is often the last to disappear, persisting after the disappearance of pus and bacteria from the urine. Hematuria occurs in the majority of severe cases of cystitis. Pain is not always present at first; it usually follows frequency of urination. When felt it is usually localized in the bladder and does not radiate. It is of a burning, cutting, bearing down character and varies from a simple annoyance at the time of urination, or before it, to an aggravated continual suffering from which there is no relief day or night. In all cases of cystitis the pelvis ought to be examined to see if there is any tumor pressing on the bladder or any inflammatory process about the uterus.

Pus is always present in true cystitis. However, pus in the urine may be due to a lingering gonorrheal urethritis or to a pyelitis. The latter is distinguished by the presence of pus in the urine without the other signs of cystitis, and also by the amount of albumen being in excess to the proportion of pus found present. A ureteral catheterization and a cystoscopic examination will clear up this point.

Bacteria are, as a rule, easily demonstrated by a simple stain of the sediment, except in tubercular involvements. An acid pyuria without organisms easily found is usually tubercular.

General Symptoms.—Fever, headache, loss of appetite, constipation and emaciation are noted only in the most aggravated cases. Persistence of these symptoms would indicate some severe trouble with cystitis only a complication—probably a kidney infection.

Diagnosis.—Pain, frequent urination, and pus found in a catheterized specimen of urine are strong indications of cystitis. Pus may come from the kidneys even when the patient has well defined vesical symptoms. Therefore it is well to bear the kidneys in mind from beginning to end of the treatment of cystitis, except where the ureters have been catheterized and specimens have been found free from pus. All persistent cases should have the benefit of a thorough cystoscopic examination when possible. However, if this is impractical, it is well to know that in two samples of urine each containing approximately the same amount of pus, the origin of one being the kidney, the other the bladder, that in the first instance the albumin reaction is more marked and clearer defined than in the second instance, and the percentage of albumin is greater.

A persistent acid pyuria lasting for months or years, slowly getting worse, is usually due to tubercular kidney; or, a pyuria with some symptoms of cystitis but no bacteria found in the urine after the usual examination, is also probably due to a tubercular involvement.

The colon bacillus is the commonest infecting organism. It produces a cystitis of varying grades of intensity, depending on the resistance of the patient and the severity of the infection. The lesions are usually multiple foci about the base of the bladder and trigon with areas of healthy tissue between; occasionally the whole of the mucous membrane may be involved.

Proteus infection gives rise to an intense cystitis with pus and blood in an alkaline urine. The cystoscope shows patches of glistening white concretions seated on a base of intense inflammation.

Gonorrheal cystitis is usually confined to the neck of the bladder and is very intense in its onset. The symptoms are those of an acute cystitis.

Tubercular forms of cystitis are in 95% of cases secondary to tubercular kidney. The lesions may appear as miliry tubercules, these may ulcerate, the ulcers may coalesce or remain intact, depending on their proximity. Later the bladder wall may become infiltrated. The process usually begins about the ureteral orifice on the side of the affected kidney. The symptoms are those of an intense cystitis with marked strangury, tenesmus, and frequent urination both day and night. These symptoms are long continued and progressive and do not yield to ordinary means of treatment for cystitis. The urine is of low specific gravity, acid in reaction, and looks like pale lemonade. Sediment is usually large in amount and sticks to the side of the container. Generally there are a number of red blood cells present.

Differential Diagnosis.—Cystitis must be differentiated from hyperemia of the trigon, urethritis, ureteritis, pyelitis of all kinds, tubercular kidney, stone and foreign body in the bladder, and stone in the kidney. Diagnosis from the symptoms alone is in some instances a long and tedious process, and even then one cannot be always sure that they are correct. A thorough cystoscopic examination by a skilled urologist will clear up the diagnosis, frequently saving the patient months of discomfort, as well as disastrous complications.

Ulcers of the Bladder.—May be traumatic, typhoid, solitary, or complicating existing lesions. The symptoms of ulcer are variable—frequent and painful urination with distressing spasm of the bladder, possibly hemorrhage in deep ulcers. When complicating existing lesions, the symptoms are aggravated. The ulcerations may be only shallow erosions, or they may be deep with overhanging edges irregular in shape with nodular infiltrated bases. The solitary ulcers are similar to peptic ulcers in their characteristics and occurrence. Carcinomatous ulcers are deep and ragged in their outline with nodular bases and protruding edges, characterized by frequency of urination and pain referred to the superpubic region or to meatus; hematuria is not present as a rule until late in the disease. Cystitis is a frequent complication.

Carcinoma of the Bladder.—The superficial type is similar to condition seen in epithelioma. It tends to spread superficially at first, later to infiltrate the bladder walls. The trigon and base of the bladder are the most frequent locations of this lesion.

Infiltrating type: Indurated nodules appear, which rapidly ulcerate infiltrating the surrounding tissues. The base of the ulcer is indurated and nodular, the edges dense, irregular and elevated. Hemorrhage is not profuse as a rule.

Tumors of the Bladder.—Simple fibro papilloma, villous papilloma, papillary carcinoma, fibro carcinoma, colloid cancer and sarcoma are encountered.

Growths may be pedunculated, sessile, or subsessile. The two latter may not be malignant but frequently are. Sessile growths with well marked cystitis, bullous edema, and an infiltrated base are malignant. Situation of growths in women is most common outside the ureteral orifices, on the anterior wall of the bladder, on scars of old operations, and occasionally near the internal sphincter. Growths on the trigon are significant of malignancy. Growths will recur in 98 per cent of all cases.

Symptoms: Tumors may give rise to alarming symptoms or there may be none at all. Cystitis, frequently mild, or may be absent. Hematuria may be present, either spontaneous, intermittent or total.

Adenoma, myxoma, and myoma are occasionally met with.

Stone in the bladder is usually easily detected in women except when very small. They produce symptoms of pain and frequent urination, and may be complicated by cystitis. It is important to determine their origin, whether in the bladder or from the kidney. The cystoscope will aid in this, also in determining the size, number and location of the stones, and whether a crushing operation is feasible or not. Foreign bodies in the bladder give rise to symptoms similar to stone. These cases should be cytoscoped for obvious reasons.

Treatment.—Treatment of bladder diseases are either constitutional, chemical, electrical or surgical, depending on their character. Treatment of the lesser irritations, but often the most trying ones, such as edema of the trigon, bullous edema, etc., should be aimed at the cause. If there is pressure from tumors, an anti-flexed or retroverted uterus, they should be corrected surgically. The bowels should be carefully regulated and the nervous system toned up. Any over acid or irritating condition of the urine neutralized. Irrigations of from 1 to 2,000 to 1 to 500 silver nitrate are often very beneficial. Local applications through an endoscope of 10% silver nitrate often clear these cases up very quickly.

In acute cystitis the treatment early is more constitutional than local. Rest in bed, light bland diet, with plenty of water as a diluent. Opium and belladonna suppositories are the best sedatives we can use. Prolonged hot douches and hot applications also give relief. Urotropin 7½ grains every three or four hours is of great benefit as an antiseptic. Potassium citrate is often useful. Later in the disease after the acute stage has subsided local measures ought to be resorted to. Irrigations of boric acid solution followed by silver nitrate solutions varying from 1 to 2,000 down to 1 to 100, as the patient's tolerance increases, are of marked benefit; four to six ounces of the solution being left in the bladder and retained, if possible, for fifteen to twenty minutes. In the severer cases constant drainage by means of a self-retaining catheter may be indicated, or continual irrigation may be necessary. This can be done by passing a double catheter. If rest, diet, drugs, irrigations and instillations fail to bring relief or cure, topical applications through a cystoscope or endoscope should be resorted to. This can be done by an experienced man. The application principally of strong silver solutions is made direct to the inflamed foci. Vaccines have not proved of much value in my practice in bladder infections except when associated with pyelitis. A freshly prepared autogenous vaccine is much preferable to the stock varieties.

In tubercular cystitis the first effort should be to get rid of the source of infection; then under proper treatment the involvement of the bladder will clear up. A tubercular cystitis does not tolerate silver solutions well, but four to six per cent. solutions of phenol irrigations have been used with markedly beneficial results.

The treatment of new growths is either electrical or surgical. Small benign growths may be removed by the high frequency spark. The bladder must be watched after this procedure, and if the growths recur they must be burned off again before attaining a large size. True malignant growths should be treated early by extirpation of as large an area of bladder wall as is feasible. In inoperable cases curettage and the actual cautery may give temporary relief.

Conclusions.—That diseases of the bladder in women are quite variable in their character.

That the clinical symptoms are often misleading and consequently the true nature or severity of the disease is frequently incorrectly gauged.

That the modern cystoscope in the hands of an experienced urologist give us a means of diagnosing these conditions with the same exactness as are diseases of the oral or nasal cavity.

That every case that does not show improvement within a reasonable length of time, under existing treatment, should have the benefit of a cystoscopic examination.

Discussion.

Dr. Henry D. Furniss, New York City: Dr. Squier's paper is very timely and I am sure that all of you have listened to it with the same interest that I have. He certainly has given us a good paper on this very important subject, and I am sure that I have profited by it very much.

The most frequent cause of bladder irritation in women is trigonitis and chronic urethritis and unless a urethrascope examination is made, many of these cases of chronic urethritis in women is overlooked. The bladder and urine are often normal.

In our work in bladder and kidney diseases of women, our routine is first: to take a careful history; next, to make a careful examination of the urine; third, a physical examination; and fourth, if there is any pain in the kidney region to make a radiographic examination of the entire urinary tract. In making these radiographic examinations it is essential that the whole tract be X-rayed, and not just the suspected portion; for frequently a stone in the lower end of the ureter will give us exactly the same kind of symptoms as a stone higher up. By this method of examination, we find out the most about our patient with the least discomfort to the patient; and in taking it up in this way a radiographic examination frequently makes unnecessary a lot of instrumentation. Also, if possible, we try to get along without ureteral catheterization. No matter how gently this is done there is always some traumatism to the ureter. The catheter remains stationary in the ureter and the ureter works up and down on this by its vermicular action. We do not use the ureter catheter except when by its aid some very definite information is to be had.

In regard to tuberculosis, we have found the bacilli in practically all cases that have subsequently proved to be due to renal tuberculosis. Also, we have had two cases where we have found tubercular bacilli in the smear, and guinea pig inoculation remained negative. I think it is well to bear this in mind, especially as guinea pig inoculation is considered the court of last resort. I have never seen what I considered a real milary tubercle in the bladder. Many text-books describe such and claim that they are fairly constant, but I have not seen them; nor have I seen any ulcers with so-called undetermined edges. Those that I have seen have been either flush with mucosa elevated above it, due to the growth of granulation tissue.

I have seen a number of cases of so-called solitary ulcer of the bladder, and I believe these are due to embolic processes, as in the peptic ulcer of the stomach.

As bladder troubles are so frequent, and so often accompany other diseases of the pelvic organs, I do not see how we as gynecologists can fail to see the importance of urology in women, It is a part of gynecology and a very essential part.

I wish to thank Dr. Squier for the privilege of hearing such an interesting and comprehensive paper on the subject of bladder irritation in women.

FURTHER EXPERIENCES IN THE TREATMENT OF HYDROCEPHALUS BY CISTERNA-SINUS DRAINAGE (AUTHOR'S OPERATION).*

By IRVING S. HAYNES, Ph.B., M.D., F.A.C.S.,

NEW YORK CITY.

IN October, 1912, I proposed drainage of the cerebro-spinal fluid directly into one of the cranial sinuses for internal hydrocephalus.

My first attempt resulted in an incomplete operation, though I believe such drainage was secured for a short time.

My second trial secured a connection between the cistern and occipital sinus. This also functionated for only a short time.

As stated in my first communication,[1] the conception that the cerebro-spinal fluid should be drained into the blood stream was original with me and based upon the known physiological fact that this is the course the fluid normally takes. It seemed to me, therefore, perfectly rational that this should be the course into which the fluid in hydrocephalus should be directed by operation. The operation which I devised and worked out upon the cadaver for this purpose was also original. This procedure I termed "Cisterna-Sinus Drainage."

When I came to write my paper and search the literature, I found that while I had independently conceived the underlying principle of the operation, this idea had also occurred to Gartner in 1895, and that thirteen years later, Payr had worked out a complicated technic to accomplish this object by connecting the lateral ventricle with the superior longitudinal sinus.

Notwithstanding these facts, the operation which I devised was so much simpler in its technic than that of Payr, I ventured to offer it to the medical profession.

Etiology.—Hydrocephalus may result from: 1. An over production of fluid. This is purely conjectural.

2. A diminished absorption of the fluid from the subarachnoid space. This operates infrequently. This type of hydrocephalus is known as "external." Although I have no postmortem evidence to offer, it would seem perfectly feasible that this form of hydrocephalus might be explained on the ground that the diminished absorption from the subarachnoid space might be due to a transient inflammation by which the normal channels of absorption had been obliterated in whole or part.

3. An obstruction to the normal outflow through the vein of Galen. While a thrombosis in this vein, causing hydrocephalus, is possible, still it is very rare.

4. An obstruction to the flow of the fluid from the lateral ventricles through the central channels of the brain into the great subarachnoid space—cisterna magna.

The majority of cases fall under this division. The obstruction may be at one or both foramina of Monro, in the aqueduct of Sylvius or at the outlets of the fourth ventricle, namely, the foramina of Magendie, Key and Retzius.

Judging from the report of Dandy and Blackfan,[2] obstruction at the last situation is more frequent than was formerly thought and is usually the result of a mild, basilar meningitis.

The experiments of these writers seem to make it necessary to revise the present accepted theories concerning the disposition of the cerebro-spinal fluid. The present teaching is that this fluid escapes from the skull, especially through the medium of the superior longitudinal sinus.

According to the tests made by Dandy and Blackfan by means of phenosulphonephtalein, "absorption is by a general diffuse process involving the capillaries in the entire subarachnoid space." By "capillaries" they must refer to those in the pia. They also claim that the rate of absorption from the spinal subarachnoid space is proportional to that from the cranial.

They find no evidences of a "current" flowing into the sinuses, but that the fluid does reach the blood stream in these channels is evident.

They agree with previous experimenters in saying that there is practically no absorption by the lymphatics.

In reference to the phenosulphonephtalein test. They state its use is harmless. After injection into the ventricle it appeared in the urine in from ten to twelve minutes, and during two hours from 12 per cent to 20 per cent was excreted.

Frazier[3] states that within two hours he recovered 60 per cent of the drug from the urine.

With free communication between the ventricles and the spinal subarachnoid space the color appeared in the spinal fluid in from one to three minutes.

When the drug was injected into the spinal subarachnoid space it appeared in the urine in from six to eight minutes and from 35 per cent to 60 per cent was excreted in two hours.

This test, then, affords a ready means for determining if there is a free communication between the ventricles of the brain and the spinal subarachnoid space. It would also aid in determining whether the obstruction to the absorption of the cerebro-spinal fluid was in the route from the ventricles to the spine or lay in a diminished capacity of absorption in the subarachnoid space itself.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 27, 1915.

Some further aid in locating the obstruction may be afforded by the history of the case.

If hydrocephalus develops in the previously healthy infant, and seems to have followed an attack of fever with more or less cerebral disturbance the inference is justified, that the cause of the hydrocephalus is a mild meningitis.

If this be correct we also know that such an attack of meningeal inflammation is very apt to be felt most at the base of the brain and may close up the foramina of exit from the fourth ventricle.

Nine of my cases were apparently normal children at birth. The average age was fourteen weeks when the disease began. Three gave a definite history of brain disturbance, one whooping cough and one was injured by instruments during delivery.

It is apparent that the determination of the type of hydrocephalus present would have considerable practical bearing upon selecting the kind of operation to be performed.

Symptoms and Diagnosis.—The symptoms of a well-developed case of hydrocephalus are so well known that they do not require elaboration here. Some points bearing upon the prognosis may be noted.

Prognosis.—I do not think sufficient importance is attached to the state of the optic nerves.

In every case examined for that purpose, optic nerve atrophy was present in all, and usually had extended to that stage marked by total blindness. In all the other cases severe destruction of the nerve was evident, though no ophthalmoscopic examination was made. I should state that of my series of twelve cases, only two had vision and in these it was far below normal. Another point is that every case, without exception, had more or less gastro-intestinal disturbance. This finally proved fatal in several instances.

The more advanced the hydrocephalus, the greater damage there is to the brain, and less probability of its recovery.

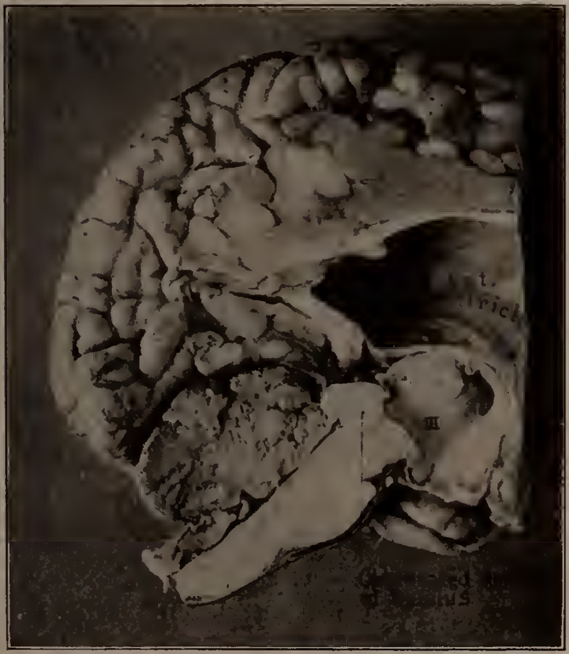

Fig. 1.—From Dandy and Blackfan. Hydrocephalus caused by closure of the aqueduct of Sylvius.

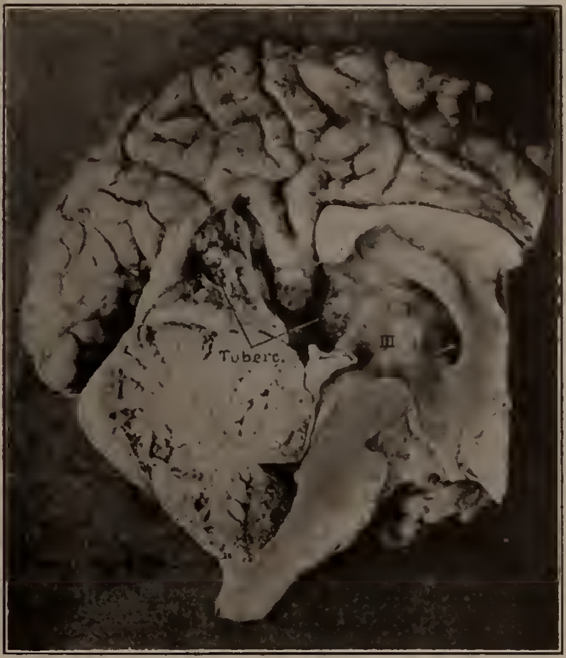

Fig. 2.—From Dandy and Blackfan. Hydrocephalus caused by the occlusion of the exits of the fourth ventricle.

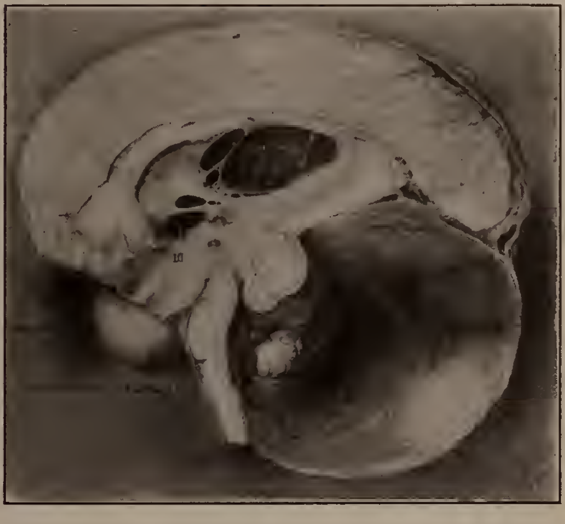

Fig. 3.—From Dandy and Blackfan. Hydrocephalus caused by the occlusion of the exits of the fourth ventricle, with great distension of this space.

I should not be afraid to state that a brain, once the seat of hydrocephalus, can never regain its normal tone and function. These children are defectives, mentally and physically, and such they will ever be whether the operation to cure the hydrocephalus has been "successful" or not.

It is evident, then, that I would claim no great credit if I did accomplish a cure of the disease in order that the child might be a further burden to its parents or a care to the state.

Operative Treatment.—The logical treatment of hydrocephalus must depend upon the following accepted statements:

1. The cerebro-spinal fluid is formed in the lateral ventricles as an active secretion of the choroid plexuses.

2. Its normal course is through the internal channels of the brain and out into the cisterna magna.

3. From here it spreads throughout the entire subarachnoid space, cranial and spinal, and is absorbed by the capillaries of this space. It ultimately reaches the cranial sinuses and the spinal veins.

4. Hydrocephalus is due to interference in the course of the current or its absorption from the subarachnoid space.

5. Any operation to be successful should reproduce the course of the fluid into the blood stream.

6. Such attempts have been made by Bier, into the temporal vein; Payr, into the superior longitudinal sinus; and the writer, into the lateral or occipital sinuses or the torcular itself.

7. Drainage of fluid into all other places, except the abdomen (which see later), has resulted in failure because a cyst is formed after a time with limiting walls which effectually shuts off all lymphatic vessels.

8. Drainage by puncture of the callosum. This has been brought to the fore by the reports of Steida, but a perusal of cases does not demonstrate that it is especially effective in hydrocephalus. Hildebrand[4] is not well pleased with the result of puncture of the callosum. There is one drawback he mentions, viz., that there is no way of keeping the puncture open. Lossen[4] has seen recurrences in three cases of hydrocephalus after callosal puncture.

It is evident that if the block is due to the diminished absorption of the subarachnoid space puncture of the callosum can not offer any relief.

9. Any form of drainage from the spinal canal must have for its success a free communication between the ventricles and the site of such drainage.

Heile[5] records a case in which he apparently secured a cure by connecting the spinal subarachnoid space with the peritoneal cavity by means of a rubber tube carried from the lower part of the spinal canal through Petit's triangle. Whether the cerebro-spinal fluid be drained from the ventricle or from the spinal canal into the peritoneal cavity, I am of the opinion that such drainage can not be permanent. The peritoneal cavity is not capable of absorbing large quantities of "foreign" fluid for indefinite periods. The avenues of absorption will become blocked and the fluid will gather in the peritoneal cavity until a cerebrospinal type of ascites results, and further absorption ceases. Heile's case is too recent to be accepted as disproving this contention.

10. The reason why cerebro-spinal fluid should be directed into the blood stream have been given in my former paper. Briefly they are these:

The *normal* course of the fluid is into the blood stream. This flow is determined by the difference in the pressure between the fluid and vein (sinuses), by the difference in the specific gravity between the fluid and the blood, and by the fact that the fluid is a secretion from the choroid plexuses and is absorbed by the capillaries of the subarachnoid tissue.

11. Cisterna-sinus drainage seeks to direct the fluid from the hydrocephalic cavity into the blood stream through one of the cranial sinuses.

It is not applicable to all forms of hydrocephalus. If the obstruction is in or above the aqueduct of Sylvius, it is evident that draining the cisterna magna would not accomplish anything. Another method (see later) is indicated. For those usual types due to obstruction of the exits from the fourth ventricle, with its consequent distention; or to a failure in

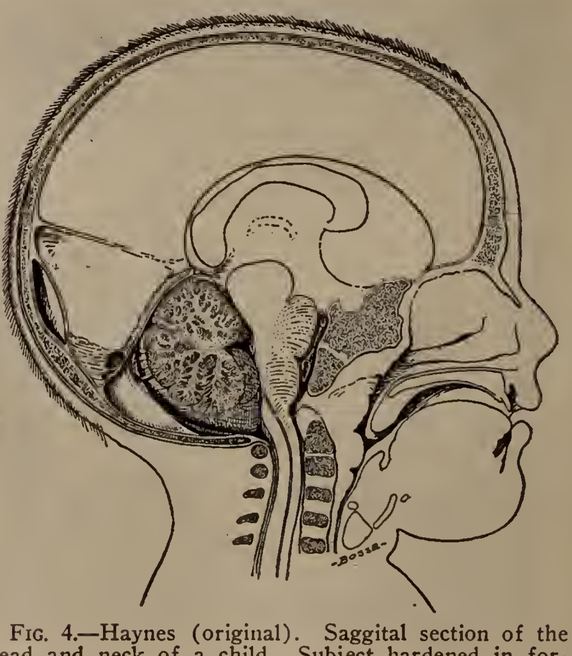

Fig. 4.—Haynes (original). Saggital section of the head and neck of a child. Subject hardened in formaldehyde and sectioned "free hand" by the writer. To show the normal relations about the cisterna magna.

the absorptive capacity of the subarachnoid tissue itself, this method seems particularly adapted.

I claim that cisterna-sinus drainage is founded on logical and physiological conceptions, but that my technic may be improved I am ready to admit. I am working for that end myself.

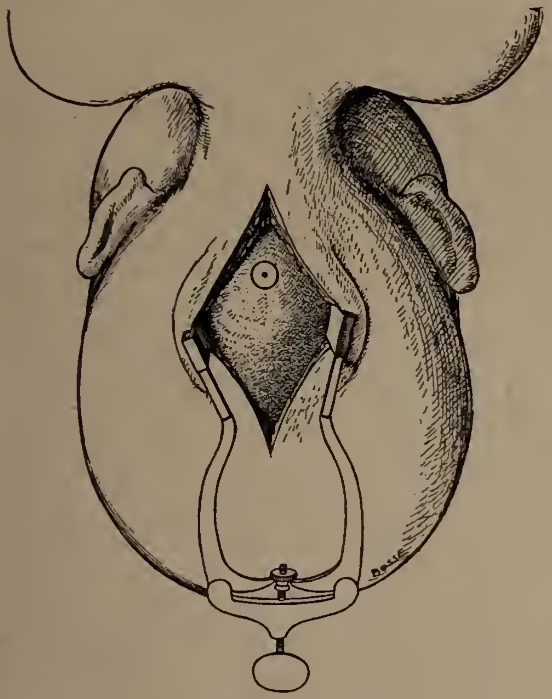

FIG. 5

Cisterna-Sinus Drainage.—(The writer's operation.)

a. The object is to drain the fluid from the hydrocephalic cavity at the base of the skull into one of the easily accessible sinuses, the lateral or occipital, if it is large enough, or into the torcular itself.

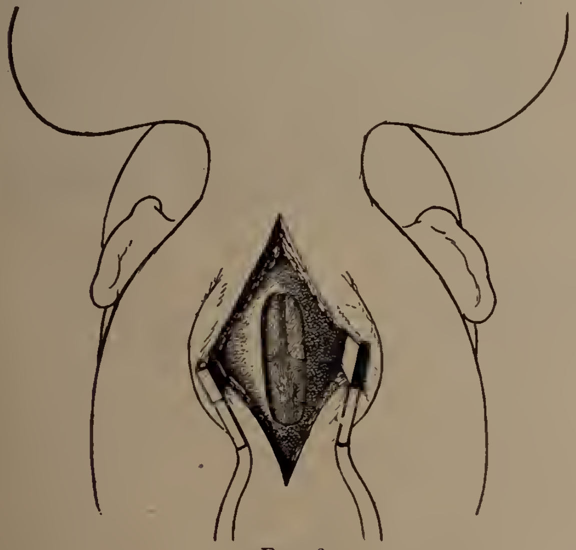

FIG. 6

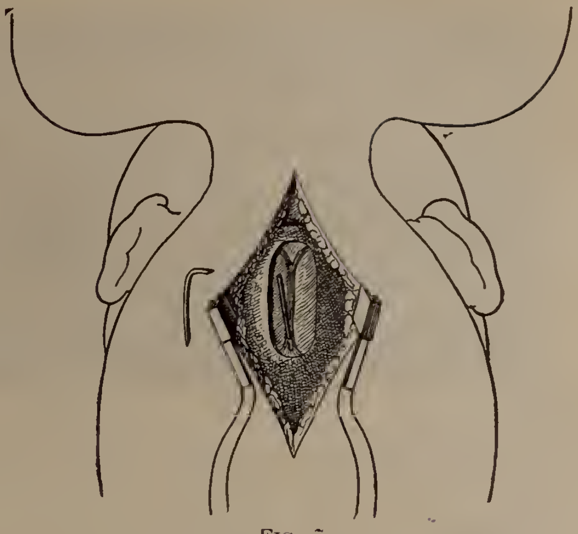

FIG. 7

b. The means is by use of a small silver cannula of one to two mm. diameter. There is a short arm about one-quarter inch long and a long arm of one to two inches long. These arms are bent at right angles to each other. The ends of the arms are beveled from the under surface outward.

c. The operation. A semi-lunar shaped flap, three inches in length is turned off the occipital bone so as to expose the same from half way between the inion and foramen magnum to the lower part of the posterior fontanelle (lambda).

A three-eighth inch trephine hole is made at the lower part of the field, and from this a gutter in the bone is cut upward from one-half to one and one-half inches wide until a large sinus is exposed. I have found in four of my cases that the lateral sinus (and torcular as well) had been crowded from one to one and

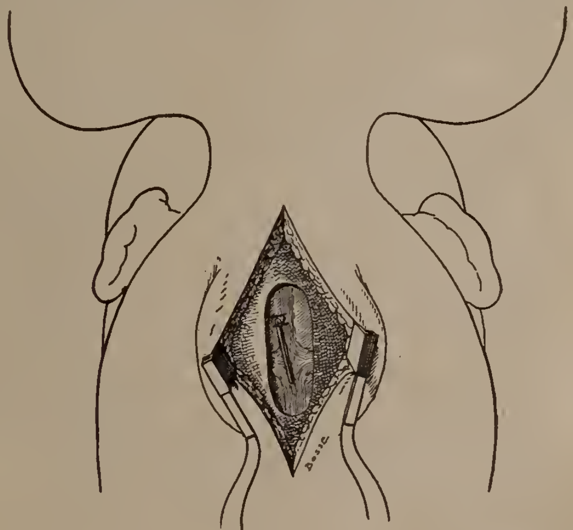

FIG. 8

FIGS. 5, 6, 7 and 8.—Haynes (original). Drawings from the subject to illustrate the technic of cisterna-sinus drainage, using a silver cannula.

one-half inches above its normal position. This finding was rather disconcerting at first. Such a displacement is due to the immense collection of fluid at the base of the brain. A sinus can be identified by its dark color and proven by a hypodermic needle.

After locating the sinus, the point where the cistern is to be tapped is determined. A hypodermic needle is used for this purpose. When located a suture of silk is passed as shown in the illustration.

With a narrow knife an incision is made into the sinus vertically, and the long arm of the cannula inserted into it. The fit should be so tight that there is no leakage of blood around the tube. Blood flows in a steady stream from the end of the cannula. This is checked by the finger. The dura (and arachnoid, with pia if present) is incised so that the cerebro-spinal fluid flows freely. Into the incision in the middle of the square marked off by the suture, the short end of the tube is inserted and the suture tied over it. This holds the cannula in place. The suture is introduced for another purpose also, this is to bind the membranes firmly together so that they all will be incised, and the cannula will also pass through them all into the fluid cavity. The external wound is sutured with any material desired. Care should be taken to place these sutures sufficiently close to each other so as to prevent any leakage of cerebro-spinal fluid to the surface. A firm pad and adhesive strapping completes the operation. I have finished the operation in fifteen minutes and have been as long as forty-five. The average time is thirty minutes.

Summary of Cases.—Males, 8; females, 4.

Average age when the disease began, 14 weeks (the child taken sick at 3½ years of age omitted).

Apparently normal at birth, 7. Normal head, but with spina bifida, 1. Apparently normal, but with a large head, 1. In poor condition, 1. Not stated, 2. Apparent cause, cerebral disturbance, convulsions, fever by which one would be warranted in concluding that there had been an attack of meningitis, 4. Whooping cough, 1. Injured at birth by forceps, 1. Result of operation for spina bifida, 1. Unknown or not recorded, 5.

Bodily development in all but one, more or less below the normal. Especially *more* than less.

Eyesight in four cases especially examined by Dr. Mills. Three were probably totally blind, while one might have some vision.

The mental condition of all cases was distinctly below the normal, even when seen at their very best.

Termination:

Died.

On table from shock, 1.

One hour after operation, shock, 1.

On the third day, 1.

On the fifth day, broncho-pneumonia, 1. Head showed decided improvement.

On the sixth day, 1. Total, 5.

Discharged From Hospital. — One lived eighteen months afterward with apparent arrest of hydrocephalus, died finally of "summer complaint." Another died one month after operation. Head much improved, attack of gastro-intestinal disturbance with apparent recovery. Died suddenly when in apparent good condition. A third was hopeless at the end of month, drainage had ceased and the disease returned. A fourth was much improved, but died one or two months later in July or August with fever and diarrhoea. Head had not increased in size. The fifth discharged in "fine condition." Could not be traced. The sixth, three months later, "very much improved physically and mentally." The seventh was discharged improved. At end of two months condition began to return. Readmitted and operated second time. Slight if any improvement.

The record is not particularly encouraging. I confess I am not very enthusiastic about the possibility of "curing" these subjects.

Second Operative Suggestion.—I have stated in a preceding part of this paper that the cisterna-sinus method was not applicable to those cases where the cause of the hydrocephalus was in or above the aqueduct of Sylvius.

Some form of ventricular drainage must be used in such cases. Of all the methods which have been proposed there are only two that need be considered.

One is the drainage of the ventricle into the peritoneal cavity and the other is ventricular drainage into the superior longitudinal sinus.

Drainage into the various tissues from the skin inward has failed in every instance.

Drainage into the subarachnoid space by means of a tube or by callosal puncture has also been unreliable. It is evident that if the subarachnoid space is deficient in its absorptive capacity that failure must result.

The only logical method seems to be, therefore, by way of the superior longitudinal sinus. However, if this sinus is thrombosed, the operation could not be done. Supposing that the sinus were functioning, what technic could be employed.

To Payr belongs the credit of devising a technic for ventriculo-sinus drainage.

His method is also so complicated that its accomplishment is almost impossible. That he partially succeeded is a testimony to his skill and perseverance. His own objections are enough to deter any one from attempting his operation.

In his method and in several others, a vein has been chosen for making the connection between the hydrocephalic cavity and the sinus or other destination. It has been found, however, that in every case failure has followed because the vein either collapsed, necrosed or became filled with a blood clot.

I believe that for ventricular drainage Payr's idea of diverting the fluid into the superior longitudinal sinus is the correct one. As his technic is almost prohibitive I have worked out the following which I think is simple and practicable.

I have not yet tried this method upon the living. The region of the anterior fontanelle is selected as the place where the brain may be traumatized with the least functional disturbance. The right ventricle should be chosen for drainage because the left hemisphere is usually the more active one.

The operation is to be performed as follows:

1. Turn down a flap about one and one-half by two inches, with the base at the right. This does not disturb the dura. The superior longitudinal sinus should be exposed and the brain (beneath the dura) for about an inch.

2. Determine the sinus by a hypodermic needle. Also with an obtuse pointed spinal needle, ascertain the thickness of the cerebral cortex at about an inch from the sinus.

3. A rubber tube with an internal diameter of two or three mm. is prepared by cutting one end obliquely and threading a suture through it, but the other end is cut off more obtusely and fenestrated near the end. The tube and sutures used with it are sterilized by boiling in vaseline.

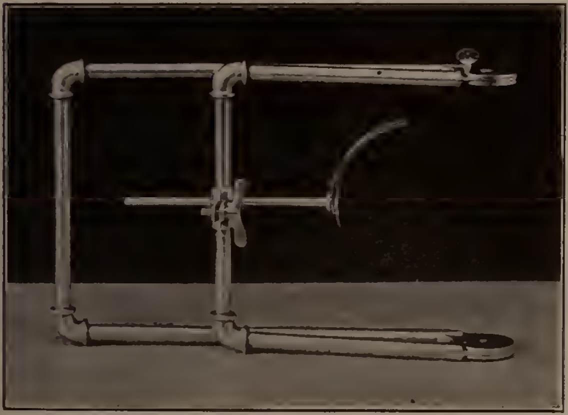

FIG 9.

4. At a point about half an inch in front of the place selected to penetrate the ventricle, the superior longitudinal sinus is incised. This incision is made obliquely in the direction of the long axis of the tube when in its permanent position. The object of this is to imitate the opening of the cerebral veins into the sinus against the blood stream. The physiological fact being taken into account that the pressure of the ventricular fluid is at all times and in all positions a few millimeters above the pressure in the vein, therefore the flow must be at all times into the sinus. But meeting the blood stream, the flow from the ventricles will not be too easy and the fluid pressure in the ventricles will be maintained.

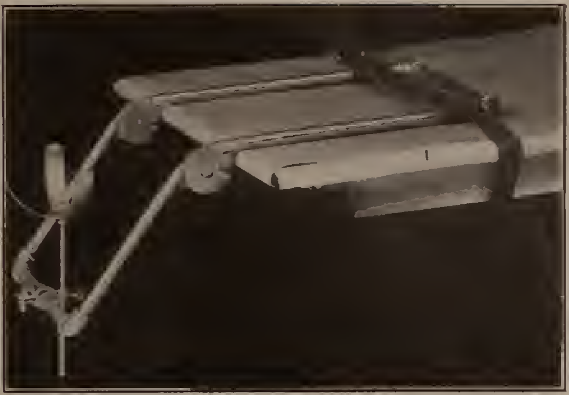

FIG. 10

FIGS. 9 and 10.—To illustrate the writer's light, portable head rest for facilitating work upon the posterior part of the head. It may be adjusted to fit all ages.

No previous ligation of the sinus is thought to be necessary as in all the operations the writer has performed in opening the sinuses, hemorrhage has always been easily controlled by digital pressure.

After the tube is fastened in position in the sinus, blood should be allowed to slowly escape so as to prevent the possibility of a clot forming in it.

5. The place where the tube is to be passed through the dura and into ventricle should be surrounded by a silk suture, dura incised, a grooved director passed into the ventricle and the free end of the tube passed along the director into the ventricle. Sufficient length must be allowed to the rubber tube so that when in place it will project for a slight distance into the ventricle. This will prevent its end being closed as the brain contracts and thickens.

The suture in the dura is tied, closing the incision about the tube.

6. The operation is completed by suturing the skin flap.

In older children, a skin and bone flap should be turned down so as to expose the region in the same way.

In spite of all the work that has been done to solve the problem of the operative treatment of hydrocephalus, we are still a long way from having any sure and safe operation to depend upon.

While hopeful about my own plan, I claim no more for it than I admit is possible by some of the other methods. I do think that from a physiological standpoint it seems rational and at least it has the advantage of simplicity. Cisterna-sinus drainage is still on trial and whether it will ultimately develop into something of real benefit remains to be demonstrated.

After spending much time, thought, experimental work and several operative attempts, I am still in the mood to question the permanent results in *any given* case after *any operation,* my own not excepted.

Every case of hydrocephalus I have seen or had to operate upon, with not more than two exceptions, were abnormal in other particulars than their brain. In no report of published cases which "recovered" do I find a careful estimate of the mental state of the patient given. I can not imagine that their eyes, their bodies or their mentality is any better than those I have seen. What advantage will it be to the parents, to the state or to the patient to prolong life when eyesight is lost or defective, when the body is weak and puny, and the mental functions are almost lost?

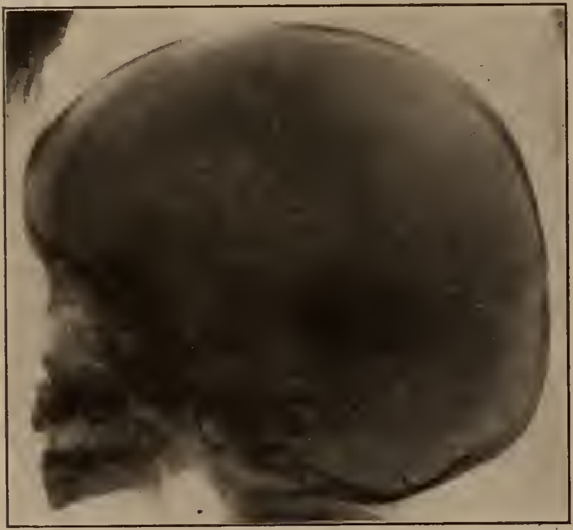

Fig. 11.—X-ray photograph of Case III, 12 days after the operation for cisterna-sinus drainage. Note the large hydrocephalic head, thin bones, and the tube in position.

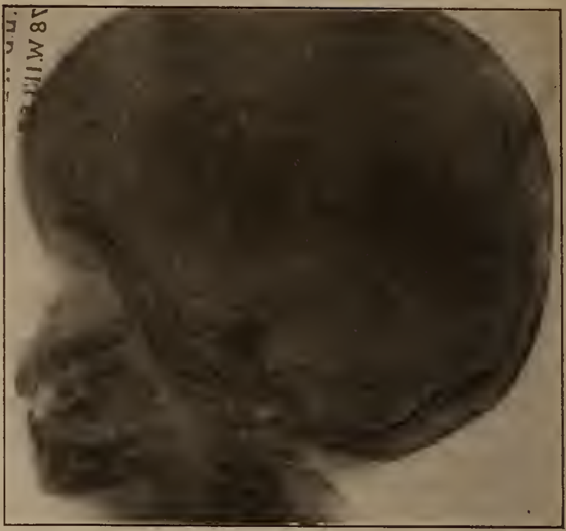

Fig. 12.—X-ray photograph of Case III, 56 days after operation. Note the improvement in the shape of head, thickening in the bones, and tube in position.

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SUMMARY OF CASES.

No.	*Sex*	*Age When First Seen*	*Condition When Born*	*Age When Disease Began*	*Apparent Cause*	*Previous Treatment*	*Extent Disease When Seen*	*Head Measurements*
I	M.	6 mos.	Apparently normal	6 weeks	None	5 ventricular or lumbar punctures	Typical hydroc.	None made
II	F.	6 mos.	Apparently normal	13 weeks	Basilar meningitis	6 lumbar punctures	Extreme	None made
III	M.	13 mos.	Normal but had large head	3 months	"Spinal meningitis"	No surgical	Typical, optic atrophy	C-21½ V-14½
IV	F.	6 mos.	Normal, weighed 5 lbs.	3 months	Began with convulsions	No surgical	Typical, optic atrophy	C-17¾ V-12½
V	M.	13 mos.	Healthy	7 weeks ago	Whooping cough	No surgical	Extreme, optic atrophy	C-21¼
VI	M.	2 mos.	Poor, weight at birth 4½ lbs.	Not stated	None	3 lumbar taps all dry	Extreme	C-16½
VII	M.	7 wks.	Large head, wt. 8 lbs. 11 oz.	At birth	None	No surgical	Typical	C-19⅗
VIII	M.	18 mos.	Not stated	Not stated	None	No surgical	Beginning	C-20
IX	M.	5 yrs.	Normal	3½ years old	Began with vomiting	1 spinal tap	Marked	C-23¼
X	F.	4 mos.	Head small	7 weeks ago	Injured by forceps	No surgical	Typical	C-20⅘
XI	F.	4 mos.	Normal	1 month ago	None	No surgical	Very marked	C-20
XII	M.	3 mos.	Spina bifida	2 weeks old	Followed operation to cure spina bifida		Very marked optic atrophy	C-22¼

Same child, readmitted. Temporary improvement for one month, with diminution in size of head. When admitted, three months after first entrance, general condition was the same. C-22¾.

Operation	*Complications*	*Course*	*Termination*	*Remarks*
Not completed. See history. Case I.	Cistern opened by trephine.	Improved for 3 weeks. Drainage ceased. Original condition returned.	Hopeless when last seen.	Drainage was apparently established between cistern and occipital sinus direct.
Case II. Cannula connecting cistern and emissary vein.	Usual gutter in bone not made, tube slipped out later.	Cerebro-spinal fluid escaped between sutures. Improved for 48 hours, then became worse.	Died on 3d day.	Intracranial fluid pressure, 75 cm. high. P-M examination of wound. No inflammation, no blood in cistern, tube displaced, closed by clot.
Case III. Cannula connecting cistern and lateral sinus.	None.	Primary union circumference 20⅛ at end 12 days. 1 year after operation C-21¼.	Recovered.	Lived 1½ years, apparently cured of hydroceph. No improvement in sight, mentality or use of limbs. Died, gastro-enteritis.
Case IV. Cistern drainage into torcular.	Torcular 1½ inches above normal. Bone very thick.	Developed broncho-pneumonia on 3d day after operation. Head much improved.	Died on 5th day after operation. Broncho-pneumonia.	Head had diminished 1 inch in circumference.
Case V. Cisterna-sinus drainage into occipital sinus.	None.	Stormy. Very irregular temperature, pulse and respiration. One convulsion.	Died on 6th day after operation.	Intracranial pressure very high. Reading not obtained. P-M lateral and occipital sinuses partially closed by clots. Tube free.
Case VI. Cisterna-torcular drainage.	Torcular 1½ inches above normal.	Very quiet until 5th day. One convulsion on 6th day.	Discharged improved. Died 1 month after operation.	Readmitted. Gastro-intestinal disturbance. Head, C-16. Died very suddenly when apparently very well. P-M tube closed by arachnoid.
Case VII. Typical operation, 2 mm. tube used.	None.	Comfortable.	Discharged 9th day after operation "much improved."	Reported to have died one or two months after leaving hospital, with fever and diarrhœa. Head had NOT increased in size. No P-M.
Case VIII. Typical and easy operation.	None.	Moderate severity. Developed whooping cough.	Discharged on 9th day after operation.	Was in "fine condition" when sent from hospital. Have not been able to trace family.
Case IX. Easy operation.	None.	Moderate severity.	Discharged 2 weeks after operation. Improved.	Head, C-23 inches, 3 months later. "Very much improved mentally and physically."
Case X. Easy operation. 1½ mm. cannula.	Torcular 1½ inches above normal.	Died of shock on the table.	Died.	
Case XI. 2 mm. cannula.	Torcular 1 inch above normal.	At end of operation went into shock and died one hour later.		
Case XII. 1½ mm. cannula. Lateral sinus.	Sinus some distance above normal.	Smooth. Highest temperature on 3d day, 101.	Discharged improved 10 days after operation.	Head showed diminution in circumference of 1 inch on leaving hospital. One month later seemed "much improved."
Case. XII. Second operation. 2 mm. cannula used into large occipital sinus.	None.	Uneventful.	Discharged on 7th day after operation. Slightly improved.	After 2 months, head was same size. Drainage apparently arrested. After second operation general condition good. Head enlarging.

THE TREATMENT OF SYPHILIS IN THE SECONDARY STAGE.*

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THE secondary stage of syphilis begins with the appearance of lesions on the skin following the first flooding of the system with spirochaetae by way of the circulation. Spirochaetae have been found in the blood (Hoffmann) during the development of the chancre, but they are few in number and quite possibly are killed in the blood. About six weeks after infection, however,—that is, four or five weeks after the appearance of the chancre,—large numbers of spirochaetae are found in the circulating blood. These organisms lodge in the capillaries, in the narrow vessels of the papillae on the skin, as no doubt in other organs, and in the skin a period of ten days to two weeks elapses between the lodgment of the spirochaetae and the appearance of the first macular lesions. The positive Wassermann reaction before the appearance of the cutaneous lesions is due to this generalization of the spirochaetae before the appearance of the skin lesions.

The secondary stage of syphilis thus definitely initiated by a striking clinical symptom, continues for an indefinite period, which rarely, however, exceeds three years and is seldom more than two, and is considered as ended with the appearance of the gummous lesions characteristic of the tertiary period. It occurs occasionally, however, that lesions characteristic of the secondary stage manifest themselves after gummous lesions have appeared, so that there may be an overlapping of the two periods. The determination of the end of the secondary stage is a matter of great importance, because with the cessation of that period the infectiousness of the patient is to all practical purposes at an end. During the persistence of the secondary stage, the patient may at any time develop infectious lesions, and it is mainly for this reason that we cannot consent to his marriage.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 29, 1915.

Throughout the entire secondary stage, for a period of two years or more, there may be in the normal course of the disease a more or less constant succession of lesions, cutaneous and visceral, that are the effect of the activity of the spirochaetal invasion of the system at the close of the primary stage. It is not my purpose to enter into an account of these lesions. Suffice it to remind you that they are not only the relatively harmless lesions of the skin, but they include the far more grave affections of the viscera, the heart and vascular system, the nervous system both central and peripheral including the optic and acoustic apparatus, the kidneys, liver, reproductive organs, bones, etc. In short, no single tissue, organ, or system enjoys immunity from the invasion and the effects of the invading organism. It is during this period, too, that the foundation is laid for the most frightful of all the effects of the disease, the late lesions of the central nervous system that we formerly called parasyphilitic.

An important fact to be borne in mind regarding the lesions of the secondary period is that they are all local in character, that they are the result of the localization of the spirochaetae in the tissues in the first great invasion of the system. Neumann showed, many years ago, that at the site of the first erythematous and papular lesions, characteristic histological changes about the vessels could be demonstrated many months after the clinical disappearance of the lesions; and recently spirochaetae have been demonstrated in these sites of former lesions as well as in the scar tissue of the primary lesion. The fact that an invasion of the system does not occur in consequence of the proliferation of the spirochaetae in loco, may be explained on the assumption of a certain degree of immunity which renders harmless such spirochaetae as happen to escape from the local lesions into the circulation. In recurrent fever, immune bodies have been demonstrated in the blood during the stage of remission at the time when the spirillae of that disease have disappeared from the circulation. It is certainly true that the syphilitic has sufficient immunity to resist a fresh infection as long as he is still syphilitic.

These considerations are important as bearing on our theory of the treatment of the disease. During the primary stage, we are dealing with a single local infection, and the aim of our treatment is to protect the local infection from becoming general. When once this generalization has taken place, the problem is somewhat different. Instead of a single lesion at the site of inoculation, we are confronted with a thousand foci, any one of which may develop into a lesion of greater or less gravity, depending only on its seat. Furthermore, the various local deposits of spirochaetae do not proliferate simultaneously; the skin, heart, eye lesions, etc., do not appear all at once; they occur at varying intervals, the spirochaetae proliferating now in one place, now in another. It is indeed probable that in many of these foci the organisms never proliferate at all, never produce lesions, but are killed by the natural forces of resistance of the body or at any rate remain inert throughout life. In this way only can we explain, for instance, the small number of cases that develop brain or cord lesions, in contrast to the large number of cases that present evidence of involvement of these tissues in the early stage of the disease. The fact that fresh lesions may develop at the site of a former lesion many years after the clinical disappearance of the earlier lesion, and the fact that the late lesions of syphilis are so often the direct effect of a trauma, points in my opinion to the probability that the spirochaetae often pass into a resting stage analagous to the spore stage of bacteria or the encysted stage of protozoa. I cannot here develop this theory, though it has a direct bearing on our theory of the treatment of the disease. I would only mention in passing, without endorsing, the work of Meirowsky, who described budding forms of the spirochaetae.

The question of the treatment of syphilis in the secondary stage resolves itself into the questions of, first, how shall we treat the patient who comes to us in the early period of that stage,—that is with a fresh macular or papular eruption; and, second, how shall we treat the patient who comes to us with one or more lesions of a more advanced period of the secondary stage,—as for instance, scaling and circinate lesions of the skin, iritis, mucous patches, etc.

The remedies employed in the second stage of syphilis are, of course, mercury and salvarsan; the iodides have no place in our armamentarium at this stage of the disease. Now, so much has been written on the subject of the treatment of syphilis that it seems to me it would only weary you if I attempted to reproduce such an article as you may read in any modern text-book on the subject. I propose to tell you what plan I have adopted as the result of my personal experience and judgment, after many years of observation, and a considerable experience in the treatment of the disease, as well in the pre-salvarsan period as by the methods of today.

In the first place, let me say that mercury properly employed, in my experience, will cure syphilis. The fact that our hospitals and asylums are filled with the derelicts of syphilis is only a proof of the indifference of the patient or the carelessness of his physician. The almost universal practice of administering mercury by mouth cannot be condemned too strongly. It is that which is responsible for so large a number of cases with tertiary lesions. It serves to lull both patient and physician into a sense of security and is a further incitement to neglect on the part of the patient. I know that there are thousands of people who are, to all appearance and by all tests, free from the syphilis for which they had been treated only by pills; but I know, too, that there are tens of thousands who have been treated by this method who are the victims of the lesions of the tertiary stage. There probably are cases of syphilis which cure themselves spontaneously. A low degree of virulence on the part of the spirochaetae and a high degree of resistance on the part of the patient may explain this. But no one can predict in a given case whether the disease is likely to be mild and readily amenable to treatment; or, on the other hand likely to yield the terrible lesions of the late period. It is therefore our manifest duty in the face of an infection capable of producing such grave effects to treat each case with the utmost vigor at our command. Above all, I would emphasize the duty of the physician to advise his patient of the serious nature of the disease, to warn him that it may be years before he can be pronounced cured, and to explain to him that freedom from visible symptoms is no evidence of a cure. I had rather be regarded as an "alarmist," than feel that through my failure to set forth the full truth to my patient I had been in any way responsible for his neglect to submit himself to a proper cure.

Mercury should be administered by intramuscular injections. No other method is comparable to this in efficacy or convenience. The choice of the particular mercurial preparation to be used is limited, in my opinion, to one of the several insoluble salts, calomel, the oleate or the salicylate. The soluble salts of mercury produce, it is true, rapid effects on existing lesions, as a rule; but in my judgment, the effects on the disease are not so lasting, and there is, moreover, the serious objection that their proper administration requires a daily injection. I have been giving injections of mercury since 1890, and in that period have administered more than thirty thousand injections. I have employed the salicylate,—more properly the basis subsalicylate,—of mercury almost exclusively. Calomel is not less effective, but is more frequently painful. I deny absolutely what some of my colleagues maintain, that calomel is more effective.

As to dosage, I have for many years passed beyond the customary dose of one grain or a grain and a half (0.06—0.1). My normal dose of the salicylate of mercury is two and a half grains (0.15). The first injections, should, of course, be smaller,—one half grain to one grain (0.03—0.06), in view of a possible idiosyncrasy on the part of the patient. If the first injection is well taken, the next, after five days interval, may be two grains (0.13) and thereafter the full dose of two and a half grains (0.15) is continued for the full course of the treatment, decreasing at times if there is any intestinal disturbance, or if the "gums are touched," or, on the other hand, increasing the dose in the rare event of a failure on the part of existing symptoms to yield. I have given as much as five grains (0.3) of the salicylate in repeated weekly doses, in selected cases, without producing harmful results.

The customary ten per cent. suspension of the salt would require so large a volume of menstrum to yield these large doses that I very soon adopted the plan of increasing the precentage of the salt to twenty per cent. and even fifty per cent. The last percentage, however, was found inconvenient, and my standard suspension is 33⅓ per cent. As menstrum, I use olive oil. The use of paraffin oils, heavy or light, is simply foolishness. The paraffines are foreign bodies, whereas olein is a normal constituent of all animal tissues. I make the suspension as follows: ℞. Hydrargyri subsalicylatis puriss, 10.0 gm.; Olei olivae, q. s. ad., 30.0 c.c; M. S. pro injectione. Three minims of this mixture contain one grain of the salicylate. Eight minims (½ c.c.) contains 2½ grains (0.15). The injections are made high up on the buttocks near the median line, with an 18 gauge needle two inches in length, the needle passing obliquely downward and forward so as to enter the muscular tissue. Ten injections, one each week constitute the full course of treatment, and in former years I repeated these courses at definite intervals throughout a period of three years. During the past year or two, I have examined by the Wassermann test a number of cases of syphilis that I had treated before the salvarsan period in a manner that I regarded as satisfactory, the treatment being concluded at periods ranging from five to twenty years ago. With a single exception, they were all symptom and Wassermann negative, and the single exception was the case of a man giving a mild positive Wassermann, whose occupation and residence made it difficult to carry out the treatment exactly as planned.

The introduction of salvarsan into our therapeutics has enormously increased the chances of curing our syphilitics, and has furthermore given us a means of curing the disease in its earliest stage with a certainty and facility incomparable with even the best methods in vogue five years ago. The previous speaker has discussed the abortive treatment of syphilis in the primary stage. It is my conviction that every case of syphilis in the primary stage of the disease before the great generalization of spirochaetae has occurred, can be cured by a single energetic course of salvarsan. In the four and a half years since we have been using that drug, the thousands of cases that have remained symptom-free, attest the correctness of this statement.

How is it with the disease in the secondary stage? The results in my opinion depend on the period that has elapsed between the infection and the beginning of the treatment. The prospect of curing the patient with a single course of salvarsan diminishes with the lapse of time from the date of the infection.

When the patient comes to me with the first erythematous and papular eruption, I expect to cure him with a single course of salvarsan and one course of mercury. The remains of the chancre should be excised, if its localization permits, otherwise inunctions of thirty per cent. calomel ointment employed locally. An intramuscular injection of one grain of salicylate of mercury is made and two days later an intravenous injection of salvarsan, 0.4, is given, and the salvarsan repeated in two days, the dose raised to 0.5, for a man of average weight. Salvarsan injections are further repeated at three or four days interval, so that the patient receives five injections of that drug within a fortnight. I often omit the preliminary injection of mercury, but at the conclusion of the course of salvarsan, a series of ten injections of mercury are given, as outlined above.

I have a fair number of cases treated in this way with a single course of salvarsan and of mercury, that I have observed for more than three years, and without exception they have been negative as to the Wassermann reaction or other symptoms of syphilis. On some of these, I have made provocative injections of salvarsan without changing the negative Wassermann reaction to a positive, and on some I have also made spinal punctures and found the subarachnoid fluid negative. These patients may be regarded as cured. My experience, however, does not cover a sufficiently large number of cases to justify me in recommending the single course or abortive treatment of syphilis in this stage in every case. I recommend that when the case comes under treatment on the first appearance of the roseola, this plan of treatment be adopted, and the great probability of a cure explained to the intelligent patient, who then may share with me the responsibility of omitting further treatment, while he remains for at least two years under Wassermann control. It may be taken as established if the patient remains Wassermann and symptom-negative during the first two years after his infection, and there is then no change in the reaction after a provocative injection of salvarsan, and no evidence of disease in his spinal fluid, that he is cured. I say this with only a slight reservation; several years still must elapse before we shall be able to say with absolute certainty that these patients are free from the risks of paresis or tabes. In the present state of our knowledge, however, I think that this risk is so small that I do not hesitate to recommend the cessation of any further care and to sanction the marriage of the patient.

When the patient comes under treatment for the first time six months or more after the infection, the plan of treatment adopted is somewhat less energetic for the initial course of salvarsan,—two injections in the first week followed by three more at weekly intervals,—but the treatment is continued with periodical interruptions for a period of two years, *irrespective of the Wassermann reaction.* Five injections of salvarsan and ten injections of salicylate of mercury are followed after two months rest by three injections of salvarsan and eight injections of mercury, and this course is repeated before the end of the first year. During the second year, the courses of salvarsan and mercury (three of one and eight of the other) are continued, with the modification that the intervals of rest between courses is three months, so that the patient receives in all five, or at most six, courses of salvarsan and mercury, in two years or a little more.*

The plan of treatment here briefly outlined is based on the principle of interrupted or fractional sterilization. If salvarsan, which certainly kills spirochaetae in the body, could reach every active germ in sufficient quantity, a single injection of that drug would cure the disease. But, unfortunately, the *therapia magna sterilisans* has proven a vain hope except in the primary stage of the disease or the earliest secondary. Whether this is due to the development of some resistant forms of the spirochaetae or to their presence in tissues impenetrable to sufficient doses of salvarsan, is not known. A generation ago the leading syphilographers of the world had come to the conclusion, based on clinical evidence that the interrupted treatment of syphilis yielded better results than the continuous treatment over a long period. It seems to me a reasonable theory that the scientific basis of this method of treatment may be found in the methods of sterilization practiced in the laboratory, where our culture media are sterilized,—when the nature of the medium precludes the use of the autoclave,—by the fractional or interrupted method, the analogon of the method of treatment shown long ago to be the best method of treatment in syphilis. The spirochaetae deposited in a thousand sites throughout the body lie dormant for varying periods, and are directly attacked by our remedies in only a slight degree, if at all, and only when periods of freedom from treatment allow them to attain a certain degree of development in the tissues are they again susceptible to our remedies. Just so, we allow the resistant spores in our culture media to develop into adult organisms, and then kill them by the moderate temperature employed in fractional sterilization. This is, of course, purely hypothetical as applied to syphilis, but it affords an explanation,—let us say, a working hypothesis,—for our methods of treatment.

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* The writer would call attention to the fact that this paper was written more than a year ago and that our views as to the most advantageous methods of employing salvarsan are still in a state of flux. At the present time he is inclined to the opinion that salvarsan is most effective when given in repeated doses at short intervals, daily or every other day. Three injections of full doses (0.4 to 0.6 for the average adult) in three days seem more effective than twice that number spread over a fortnight or more.

It is evident that the plan of treatment outlined above is far more energetic than that formerly in vogue. Before the salvarsan and the Wassermann period, four courses of inunctions of mercury were considered ample treatment even in Germany, and elsewhere the treatment was generally far inferior. It is, however, only within the last years that we have awakened to a full realization of the terrible possibilities following an infection of the spirochaetae and of the inadequacy of the usual treatment. Salvarsan and mercury properly employed are to all intents harmless drugs, and it is better to err on the side of a little more treatment than may have been necessary in a given case than to subject your patient to the grave risks attending the victims of a "partial cure."

A few words in regard to special lesions of the secondary period. The local lesions of this period yield, as a rule, so promptly to salvarsan that it is hardly worth while to discuss their local treatment at length. Mucous patches and eroded papules, however, should be treated with an application of ten per cent. nitrate of silver or five per cent chromic acid, simply to sterilize their surface temporarily and thereby diminish the risk of infection to others. Lesions of the acoustic or optic apparatus, should receive salvarsan promptly, and when such lesions occur after the first injection of salvarsan, more salvarsan should be given at once. Cases presenting papules on the vocal cords should receive a few injections of mercury before the salvarsan is given, lest a Herxheimer reaction following the first salvarsan injection result in a dangerous oedema of the glottis. Malignant syphilis,—the precocious occurrence of grave destructive lesions of the skin and mucous membranes,—yields readily to salvarsan. In the presence of visceral lesions of the secondary stage, salvarsan, in general, should be used in small doses frequently repeated. This is especially true of the lesions of the heart and the aorta, the liver and the kidneys. In the presence of an acutely enlarged liver, it is safer to precede the course of salvarsan by a short course of mercury, and if icterus be present, not to give salvarsan at all. One of the most difficult problems we encounter is presented by the cases of albuminuria that develops while the patient is under treatment. We cannot always tell with certainty whether the renal disturbance is due to the syphilis or is an effect of the mercury. The presence of a small amount of albumin and a few hyaline casts is, however, no contraindication to salvarsan in small doses, 0.1 or 0.2. Where there is evidence of meningeal irritation, it is good practice to give a small hypodermatic dose of adrenalin ten minutes before the salvarsan is administered.

To sum up my treatment of syphilis in the secondary stage: On the appearance of the macular eruption, I attempt abortive treatment; excision of the chancre, five injections of salvarsan within a fortnight, and ten of the salicylate of mercury in weekly doses of two to three grains. When the patient first comes under treatment in the later stage of this period, I employ the interrupted method, beginning with five injections of salvarsan at weekly intervals and ten injections of the salicylate, and this combined course of mercury and salvarsan reduced to three injections of salvarsan and eight of mercury is repeated with two or three months intervals of rest between courses for a period of two years. Wassermann tests are made systematically, but the treatment is continued whether the reaction be negative or positive; if, however, the reaction remain positive after the first course of treatment, the next course is a counterpart of the first. After an interval of at least one year from the cessation of treatment,—a longer period would be preferable, of course,—I discharge the patient, if he remains Wassermann-negative after a provocative injection and his spinal fluid is normal.

The last decade, Mr. Chairman and gentlemen, has brought tremendous additions to our knowledge of syphilis, and happily, also, an enormous improvement in our methods of treatment. There is at the present time no more important duty devolving on us who make a special study of the disease than to impress on our hospital authorities and on the general practitioners who see most of the cases of syphilis, the grave responsibility which rests on them when the unfortunate victim of this terrible infection comes to them for help.

THE HEART IN SYPHILIS.*

By HARLOW BROOKS, M.D.,
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TWO years ago when I presented a paper on this subject before the Internal Section of the State Medical Society; in the course of the discussion a member made the statement that the condition was so rare a one as not to interest practitioners outside of the great cities. Indicative of the rapid change which has taken place in the opinion of the medical public in this regard within the past two years, we note that Warthin at the 1914 meeting of the Association of American Physicians names syphilis as the most important factor in the causation of disease of the heart muscle, and Cabot at the meeting of the Internal Section, American Medical Association, held at Atlantic City, in June, 1914, made a very similar observation. The condition is now reported with great frequency from all communities of the sick who are observed with sufficient care to permit of the recognition of so obvious a lesion.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 28, 1915.

The two factors chiefly operative in producing so rapid a change in medical opinion have been, first, the general interest manifest throughout the world in the study of syphilis in all its forms and, second, the definite tendency particularly manifested in America and in England to now go intimately into the question of the etiology of cardiac conditions. We are no longer content with the simple diagnosis of a cardiac lesion, but an exact definition of its etiology is demanded. As a result, a great advance in cardiac therapeusis has followed.

Most of the older authors who have considered this subject have given the impression that involvement of the heart occurs only as a late manifestation of lues. It has now been certainly shown that invasion of the heart begins at least as early as the first appearance of secondary symptoms or signs, and that at this period extensive and serious lesions of the circulatory center may even then exist. When one fully recognizes that syphilis is a septicemia, any other conclusion would be necessarily illogical, even had it not been now certainly shown that symptoms, signs and even fatal lesions occur in the heart in the secondary stage of the infection. Carrol and I have thus for example reported twenty-five cases, three fatal, of cardiac involvement in this period of the infection (*International Clinics,* Vol. 1, Series 25). Though I am of the opinion that in all probability very many instances of cardiac involvement originate at this time, as a matter of fact most of them are not recognized until late in the tertiary stage. My contention throughout has been, however, that close routine examination of cases of secondary syphilis from the internists standpoint will disclose abundant examples of evident serious heart involvement at this early stage. Fortunately the mortality rate at this period is not high because nearly all instances of secondary lues are at least for a time correctly and more or less vigorously treated.

Analysis of the lesions found at post-mortem in cases of heart involvement shows that disease of the myocardium is the most frequent. Various types of inflammation and degeneration are found in the late stages, but apparently the dominant and earliest lesion consists of a true syphilitic myocarditis which as first demonstrated by Adler in 1898 originates about the terminal arterioles of the coronary system. Subsequent to this change, fibrosis, fatty degeneration, brown atrophy or practically any type of muscle degeneration may appear.

Changes in the pericardium while quite frequent even in the early stages as reported by Carrol and myself commonly do not lead to eventual conditions of very great clinical significance, although a very interesting lesion, apparently similar to leukoplakia does appear in the pericardium with great frequency and doubtless adhesive pericardium may also so originate.

As regards involvement of the heart valves, our studies have corroborated the general opinion as to the predilection for the aortic segments, though signs of mitral discrepancy commonly appear first, probably due more to muscle rather than to valve involvement since at post-mortem mitral changes are much less frequently found to be of a typically luetic type than is the case with the aortic segments. The frequency of involvement of the aortic sinuses must be noted because of its very close association with the production of aortic aneurism.

The great importance of disease of the coronary artery in syphilis can not be too highly emphasized and in this regard it should be noted that the probable earliest lesions in the muscle originate as a periarteritis. My studies have shown that the severity of coronary involvement is not so much dependent upon the time or stage of invasion as on its activity. Age also appears to be a negligible factor in this regard and I have reported advanced cases at the respective ages of twenty-three, twenty-six and twenty-eight years. (*Jour. Amer. Med. Ass'n,* Vol. LXIV, p. 1456, 1914), Warthin (*Trans. Assn. Amer. Phys.,* May 15, 1914), reports the demonstration of numerous spirochetae in and about these coronary vessel lesions.

As might be expected from the character of early muscle and coronary changes in this infection, symptoms of muscle deficiency appear even very early in the infection. The indications are quite similar to those which may appear in any of the acute infectious diseases, but unlike these at post-mortem, definite and entirely specific lesions are here found. We have particularly called attention to the early symptoms of dyspnoea, slight cyanosis and of vague pain in the precordium, sometimes with marked retrosternal tenderness, specially when mild exercise is given.

As to the occurrence of circulatory symptoms in the late stages of syphilis. Of 200 cases analyzed in this respect, 164 entered an internal service making complaints of circulatory discrepancies. In many, perhaps most cases, symptoms of heart involvement are not complained of until long after the primary infection and the lesions not infrequently remain fully compensated until approaching old age or an extraneous incident reveals them.

After the secondary stage nothing symptomatically characteristic of syphilis is shown by the heart lesion, and the signs and symptoms manifested in each instance are respectively those due to the specific anatomical change present whether it be an endocarditis, a myocardial degeneration, cardiac gumma, aneurism or a simple cardiac fibrosis. The association of cardiac symptoms and signs with other sigmata of lues are the only specifically diagnostic features. Analysis of the symptoms presented in our group of over 300 cases (*Jour. Amer. Med. Ass'n*, Vol. LXIV, 1914) has shown, however, the predominance of signs and symptoms indicating muscle discrepancies. Named in their relative order of frequency and taken as a whole, irrespective of the specific anatomical changes present, the symptoms have been dyspnoea, tenderness and pain in the precordium (at times true stenocardia due to dilatation or to coronary disease) disturbances of rhythm including heart block and insomnia.

The question of the diagnosis of heart involvement in syphilis resolves itself into two factors, the diagnosis of the general infection and that of the special cardiac lesion.

In the diagnosis of the underlying infection, always the most important and commonly the most difficult matter, one must in general disregard the history except in positive instances. The reasons for this are apparent to all who have worked extensively with this infection. We have all in the past doubtless underestimated the frequency of absolutely unsuspected and entirely innocent infections.

In diagnosis, the finding of associated lesions of lues is most important. Among these are tibial nodes, obscure chronic arthritis, lymph adenitis and scars of the mucous membrane and dermal surfaces. We have found associated lesions of the cerebro-spinal axis of particular importance in this respect, especially in long-standing cases. A significant lesion of this character was found in over fifty per cent. of the cases analyzed by us in this respect. We wish especially to call attention to the frequent occurrence of stiff pupils and of decreased muscle tenderness (Collins reflex).

In cases of doubt, resort to the therapeutic test has proven of great value to us. At the very worst, it can but cause the patient moderate discomfort and by no means infrequently a positive diagnosis may be thus arrived at with definite improvement in the aspect of the case, as a result of the diagnostic measure. For this purpose we commonly employ intramuscular injections of the salicylate of mercury, though occasionally salvarsan has been also so used. For satisfactory results with this diagnostic method, however, it is important that definite cardiac medication should be withheld until the test out of the specific drugs has been made, otherwise one cannot certainly know if the improvement in the heart condition resulted from the specific drug or from those directed primarily to improvement of the circulatory condition.

I cannot speak too highly of the value of the Wassermann reaction for the recognition of lues as a causative factor in cardiac conditions of obscure etiology. We have found it but rarely negative where the cardiac symptoms were of an aggressive character. In occasional chronic cases, however, it has been found negative and in several instances the giving of a provocative dose of mercury or salvarsan, preferably of the former, has been followed by an active, and not infrequently, persistent Wassermann positive. Even with all definite evidence of syphilis wanting there are certain cases which still justify a tentative diagnosis of lues and a prosecution of the specific treatment, in several instances in my experience with happy outcome. Though perhaps the diagnosis was questionable, nevertheless apparent improvement followed specific treatment.

Diagnosis of the particular cardiac lesion needs no particular discussion at this place. It is, of course, determined by the customary methods employed in circulatory study and is specifically indicative only in those instances in which the type of the apparent lesion is such as experience has shown to be most readily explainable on the basis of syphilitic causation. In this respect we must constantly bear in mind the dominance of muscle changes in syphilis of the heart.

Treatment resolves itself into that designed to attack the specific and causative infection, to remove in so far as possible its resultant lesions and that designed to benefit the elementary circulatory change. It is a statement of axiomatic value that in each case, treatment of either type must be definitely individualized. It is also obvious that the specific treatment is by far the more important. In early cases this is commonly all that is necessary and even in late instances the results thus achieved as to permanency and relief are by far the more important.

Unless the aggressive character of the case demands the most prompt possible check, I prefer to introduce treatment by the use of intramuscular injections of the salicylate of mercury. Other forms of mercury medication are also employed, including the use of inunctions, mercury by mouth and even of mercurial vapors but most prompt and satisfactory results have been customarily reached by the use of intramuscular injections. We have never had a serious accident follow this method. Subsequently in most cases salvarsan is given three or more times. In this regard I have found the old salvarsan apparently most efficient and most permanent in its effects. I have used it almost exclusively intravenously, but recently under the advice of a syphilographer I have tried a few cases by the deep intramuscular injections of neo-salvarsan.

Where immediate check of the process seems to be imperative, I have used the prompt intravenous injection of salvarsan, usually with excellent effect, but in several instances very serious reaction has followed, especially in cases in which the muscle conductivity of the heart appeared to be seriously compromised. As a natural result, I now prefer in such probable cases to introduce treatment with mercury, after which salvarsan appears to me to be less likely to produce circulatory collapse. In no instance have I reached satisfactory or permanent benefit, from salvarsan alone, and in every case it has been followed by prolonged mercurial medication of one or another form.

The iodides appear to me to be of as great benefit in these instances of heart involvement as our older ideas of its therapeutic indication suggested. I do not for one moment believe that the iodides are specific in syphilis, even in the latter forms, in which they seem most beneficial but I thoroughly believe that they are very helpful, to put it mildly, at least in the removal of deposits and in the restoration of a relatively normal heart action. Potassium iodide, gives me the most certain results for these purposes.

As a result of our experience, I prefer to precede definite cardiac methods of treatment, except as to the customary physical and precautionary measures by specific methods. I am convinced for example that drugs of the digitalis group produce much more definite and permanent effect when given after rather than before or during the early specific treatment. There are, however, imperative and otherwise exceptional instances.

Except for these general statements, I do not feel that the direct circulatory treatment of these instances demands any special discussion here. The specific treatment must, however, be persistently prosecuted as in other cases of acute or long-standing syphilis. Sporadic specific treatment, gives much less decisive or satisfactory results as compared to instances where the treatment (specific) is persistently carried out.

As to prognosis, I believe that in early instances the heart disease may be radically cured, in most cases by specific measures alone, and even in active luetic endocarditis or myocarditis. One instance of this type, however, in my own hands and in those of excellent syphilographers passed on uninterruptedly to an early cardiac death in spite of the most vigorous measures of every description.

In the average case of moderately long involvement, great benefit and often cure may be brought about. In very long-standing cases, however, though the activity of progress may be absolutely checked, it is not to be supposed that a muscle fibrosis, myocardial aneurism or a thrombosis of the coronary can be completely removed anatomically, or for that matter clinically. Great improvement, however, is the rule even in these cases in which almost always a far more successful response to cardiac measures is afterward secured than when circulatory measures alone are used. Subsequent relapse, is rarely followed, however, by such definite effect and the crux of the whole subject of treatment appears to me to be early recognition of the cause of the heart disturbance that is of the syphilis and persistent and vigorous specific, succeeded and then combined with the customary methods of circulatory treatment.

THE IMPORTANCE OF EARLY AND PROPER TREATMENT IN DISEASES AND INJURIES OF THE EYES.*

By JOHN S. KIRKENDALL, M.D., F.A.C.S.,

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THE subject matter which I intend to speak of is one that has been preying upon my mind for many many years.

The activity of many of our leading oculists for the last decade to conserve vision has been and is one of the most humane and distinctive advances in medical science for the past half century, but it seems to me there is room for further advance. Ophthalmia neonatorum has been fought with a vengeance until every physician of our land is familiar or should be with its prevention, but I contend that there is as great or greater cause which has been quite overlooked by these workers, I mean, lack of knowledge on the part of many physicians in this branch of medicine.

I feel sure the greater numbers of blind people that we have today are from other causes than ophthalmia neonatorum. Having practiced ophthalmology for the past twenty-nine years, more or less, perhaps the latter, and having seen so many eyes lost as a result of improper early care, has impelled me to take up this subject for our consideration and discussion.

Patients as a rule will say that they had rather be dead than blind, then why, in our medical colleges, don't they impress upon the minds of the students of medicine the fundamental principles of ophthalmology more thoroughly, give more rigid examinations and when the degree of Doctor of Medicine is conferred he will know as much about the first principles of ophthalmic practice as he does of surgery, orthopedics, obstetrics, gynecology, etc. Every physician who has been graduated during the past forty years knows well how light ne made of this very important subject, how he slighted the small amount of required work in this department and squeezed through the examination which was very easy and received his degree to practice in this branch of medicine which is so important, especially as a serious disease as well as in an economic sense as compared with other organs of the body. If every professor of ophthalmology in our colleges would make it a strong point in their short course allowed, to bring out boldly the most salient points to be met relative to eye diseases such that the many cases of blindness which we have today would have proper early treatment. I believe that the number of blind people would be reduced at least ten per cent. Why not make an indelible impression upon the student that he should not neglect to use a one per cent solution of atropine in every injured eye immediately, that atropia is the sheet anchor in such cases with few, if any, exceptions, that every case of conjunctivitis is not surely pink eye, that he should be able to palpate the normal eye sufficient to determine its contraindications, to have on hand always, tablets to make the required solutions on short notice, or what is better to have, a one and one-half per cent solution of the alkaloid of atropia dissolved in castor oil well stoppered which will keep indefinitely, ready for use when needed and can be dropped in the eyes of adults from a clean toothpick every four hours if necessary until the service of a specialist can be acquired. ℞. Alkaloid of atropia, grs. 6. Ol ricine ℥i. Dissolve by aid of gentle heat. Sig. One drop in eye every four hours if necessary. This formula of atropia has the advantage of not passing through the canaliculus remaining in the cul-de-sac for a long time and spending its full force upon the iris without the toxemia of an aqueous solution.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 28, 1915.

It is the advice of the family physician whom the patient seeks first when injured or for an inflamed eye and it is up to him to be ready to do what is right by his patient at this time. He will if he has sufficient knowledge know how to differentiate between iritis, scleritis, keratitis or conjunctivitis, be the last pink eye or what not. The almost household remedy known as boracic acid is by no means a specific, neither is argyrol when a sure diagnosis is not made. Every oculist has had many cases of iritis treated by a physician for days, then referred to him too late to break up the adhesions and the eye is then damaged so badly that it will not recover and go on from bad to worse. There is no such thing as simple conjunctivitis as applied to these cases generally, conjunctivitis or simple inflammation of the eyes is a dangerous term and means much to the patient and surely would to you were you in his place.

It takes only a matter of twenty-four or forty-eight hours for an eye to be lost when subjected to the causes which precipitate iritis or glaucoma at times. If every injured eye could have atropia instilled immediately thousands of eyes that are lost would be saved, the same is true if the proper diagnosis ot iritis be made. Glaucoma has a realm of its own, while dangerous it is not so common. It might be well to give the differential diagnostic symptoms between conjunctivitis, iritis and glaucoma in brief.

In acute conjunctivitis we always have more or less pus formation but not so in the chronic irritative form but in neither do we have a deep-seated pain or frontal headaches which are usually nocturnal and generally lets up for a brief period during the twenty-four hours. In iritis we have this same picture of pain, etc., plus a lack of motility of the iris that is best shown or seen by alternate exposure of the eye to extreme light and darkness, a slowness in its activity which is quite the reverse in acute conjunctivitis. The symptom of deep-seated pain in and about the eye at any time, day or night, is always a danger signal that every physician should be on the alert for, and always means a deep-seated inflammation of the uveal tract or sclerotic. Dimness of vision goes with these latter troubles.

The term "Simple Inflammation of the Eye" should never be used, it is a dangerous expression and means nothing no more than to say inflammation of the body when a patient has pneumonia, appendicitis or nephritis, etc., etc., but how often this term is used to pacify a nervous patient. The same is true of a simple earache. Not long ago I had a patient who had a long severe case of measles attended with great toxemia, she had a great deal of photophobia, but this was considered a normal symptom with this disease, it went from bad to worse then she called to see me. I found her with complete posterior synechia of both eyes and the beginning of cataract in one quite advanced. I concealed the fact that she had not been treated right and did all I could for her which was very little, I gradually told her that some day she would need an iridectomy in this worst eye, later an extraction, etc., etc., all of which is attended with danger which I did not tell her and so on. She is a very intelligent lady, though very deaf, she could hardly be made to hear even with a trumpet at the height of one's voice. She came from an adjacent village and I have cared for her and do at the present time. This is certainly pathetic to be so deaf added to what must come to her, greatly reduced if not almost total loss of useful vision, all of this could have been avoided had her physician known the essentials of the first aid in such cases. Every oculist who has been in practice knows that the picture is common for him to meet. I have seen many more of these cases than I ever have of ophthalmia neonatorum and feel that it should be included in all lectures and talks on conservation of vision in adults as well as in the newborn. The family physicians are not to blame, it is the teaching system in our colleges at large. They touch too lightly upon the special subjects of both the eyes and ears. In our accident insurance companies they allow as much for the loss of an eye as they do for a leg, yet the family doctor is taught how to conserve this part of our anatomy but not the eye.

I remember of only two eyes that have been lost in my practice during the past twenty-five years from ophthalmia neonatorum. I feel that the above phase of the situation should stand out in bold relief before the large body of physicians of today. All credit is due to Drs. F. Park Lewis and Frank Allport for their push and efforts to wipe out as it were, the blindness of childhood. But I do contend as above stated that every student of medicine should be taught the first needed care of our two and most important special senses.

THE EYE FINDINGS IN ONE HUNDRED PATIENTS WITH PULMONARY TUBERCULOSIS.*

By ARTHUR J. BEDELL, M.D.,

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MUCH is written in medical and lay journals concerning the effects of tuberculosis on the general system. Of late several medical articles have advanced the theory that eye strain might be or as some of the bolder authors state is the cause of tuberculosis. They claim that the altered metabolism is dependent upon gastro-intestinal disturbance directly traced to refractive errors. To attempt definite conclusions it was decided to examine the patients in the Tuberculosis Department of the Albany Hospital which through the kindness of Dr. Erastus Corning and Dr. Malcolm Douglas, the attending physicians, was done under excellent surroundings.

The classification as to stage of the disease follows the national grouping into incipient, moderately advanced and far advanced.

The examination was carried out in the following uniform manner: After noting the color of the iris, the size and reactions of the pupil, the extra-ocular muscles were roughly examined, the conjunctival and corneal details recorded and then the vision tested for distance and near. The preceding inspection was done in daylight so that the size of the pupil is for equal illumination and may not be considered as the result of unequal light stimulus.

A drop of 5 per cent euphthalmine was then put in each eye, at the end of an hour both eyes were examined with the ophthalmoscope and then retinoscoped. Many patients were too ill for this complete routine but even they were examined after euphthalmine with an electric ophthalmoscope so that all fundi were thoroughly searched for pathologic changes.

The statistical tables show that seventeen females and eighty-three males were examined of these four were negroes, thirty-eight blondes and fifty-eight brunettes. The type of the individual is stated for future observations and later may be used in presenting other interesting facts regarding tuberculosis. The age of the patient varies from fourteen to sixty-nine as follows:

Between	10-20......	10
"	20-30......	7
"	30-40......	32
"	40-50......	23
"	50-60......	15
"	60-70......	7

The complete examination was made in sixty-four, partial in thirteen and the bed cases were twenty-three.

The results showed: Hypermetropic eyes, 54; myopic, 3; myopic astigmatism, 12; mixed astigmatism, 7; hypermetropic astigmatism, 26; compound hypermetropic astigmatism, 39; emmetropic, 4.

The pupils were equal in sixty-nine and unequal in thirty-one. This is a symptom to which attention has been drawn by numerous observers but as yet I am not convinced that it is of clinical value. To support this last statement 100 patients presenting in office for refractive errors showed 27 per cent of unequal pupils. This is recorded because many textbook writers claim that unequal pupils mean general lesions of various kinds.

Although nothing new has been reported, it is hoped that others will record their experiences in order that the true relationship between all tubercular lesions may be well understood. As a means to this end I would advise the careful examination of the eyes of all the patients in tuberculosis sanatoria. By concerted effort a great number of cases can be reviewed and deductions of value drawn.

In conclusion it seems feasible to note the condition of the patient before and after the proper refractive correction for if everything pertaining to the patient is considered it may be possible after long and exhaustive study to decide how great an effect the need of glasses plays in the rôle of pulmonary tuberculosis.

Note.—I wish to thank Agnes R. Dayton, the nurse in charge of the tuberculosis pavilion, for her great assistance in the examination of patients.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 28, 1915.

Name	Age	Sex	Type	Iris	Pupil	Vision		Refraction	Fundus	Duration	Complications & Accompanying Diseases	Remarks
						Far	Near					
H.	33	F.	Brun.	Gray	3.5	20/40	T. 1.	+1.00 ax 90		2½ yrs.	M.A.	
					3¼	20/30	T. 1.	+1.00 ax 90				
F.	24	F.	Brun.	Dark brown	4.5	20/30	T. 1.	+ .50 ax 60	Negative.	15 mos.	Incipient.	
					4.0	20/30	T. 1.	+ .50 ax 135				
V.	15	F.	Blonde	Gray	3.5	20/20	T. 1.	+ .75=+ .25 ax 90	Negative. Cilio retinal	8 mos.	M.A.	
					3.5	20/15	T. 1.	+ .75=+ .50 ax 90	vessel out.			
McD.	32	F.	Brun.	Brown	3.5	20/20	T. 2.	+ .50 ax 90		3½ yrs.	M.A.	
					3.5	20/20	T. 2.	+ .50 ax 90				
F.	28	M.	Brun.	Brown	4.0	20/20	T. 1.	+1.00	Venous pulse.	3 yrs.	M.A.	
					4.0	20/20	T. 1.	+1.00=+ .25 ax 165				
W.	32	M.	Brun.	Brown	3.5			+1.00		1½ yrs.	F.A.	Otitis media.
					3.5			+1.25				
C.	42	M.	Brun.	Blue	3.0	20/20	T. 1.	+ .50 ax 75	2 cilio retinal vessels out	3 yrs.	F.A.	
					3.0	20/30	T. 1.	+1.00 ax 75	venous pulse.			
F.	38	M.	Brun.	Gray	3.0	20/20	T. 1.	+ .75 ax 105	Veins large tortuous, not		F.A.	Emphysema.
					3.5	20/15	T. 1.	+ .50 ax 150	compressed by arteries.			Diabetes—Valvular heart.
L.	30	M.	Brun.	Light brown	4.0	20/30		+2.25=+ .50 ax 90	Venous pulse.	14 mos.	M.A.	
					4.0	20/30		+2.50=+ .75 ax 105	Negative.			
M.	51	M.	Blonde	Light blue	2 m.	20/70	T. 2.	High M.	Depressed corneal ulcer.	1½ yrs.	F.A.	
					2.5	20/70	T. 2.	+1.75=+1.25 ax 165	Old iritisno nodules.			
McD.	42	M.	Blonde	Dark brown	3.0	20/40	T. 2.	+ .25=+1.50 ax 75		3 yrs.	F.A.	T. B. kidney, T. B. spine.
					3.0	20/40	T. 2.		Cilio retinal vessel.			
H.	31	M.	Brun.	Light brown	3.5	20/30	T. 1.	+ .50 ax 90	Venous pulse.	3½ yrs.	F.A.	
					3.5	20/20+	T. 1.	+ .50 ax 90				
J. B.	33	M.	Brun.	Blue	3.5	20/30	T. 1.	+ .50=+1.50 ax 105		15 mos.	F.A.	
					3.5	20/20	T. 1.	+ .25=+1.00 ax 120				
V.	..	M.	Blonde	Gray	3.5	20/20	T. 1.	— .50 ax 180	Divergence—Venous	2 yrs.	M.A.	
					3.5	20/15	T. 1.	— .50 ax 180	pulse.			
G.	52	M.	Brun.	Gray-brown	3.0	20/50	T. 14.	+1.00	Ant. cortical cataract,	4 yrs.	F.A.	
					2¾	20/70	T. 19.	+2.50	right.			
O. D.	60	M.	Blonde	Light blue	3.5	20/100	T. 16.	+1.75	Old choroiditis temp. side	2 yrs.	F.A.	
					4.0	20/70	T. 14.	+1.50=+ .50 ax 165	Macula.		Nothing to suggest Tuberculosis.	
J. P.	14	M.	Blonde	Light blue	5.0	20/20	T. 1.	+ .25	Venous pulse.	6 mos.	Incipient.	
					5.0	20/20	T. 1.	Emmct.				
S.	44	M.	Blonde	Blue	4.5	18/200	T. 4.	+3.25		3 yrs.	M.A.	
					4.5	20/200	T. 4.	+3.25				
S.	58	M.	Blonde	Blue	3.5	20/40	T. 2.	+ .25	Cilio retina vessel out.	2½ yrs.	F.A.	
					3.5	20/30	T. 1.	+ .50	Venous pulse, pale disc.			
B.	42	M.	Brun.	Brown	4.0	20/20	T. 3.	+1.25		2½ yrs,	Incipient.	
					4.0	20/20	T. 10.	+1.25				
P.	31	M.	Brun.	Gray	4.5	20/15	T. 1.	+ .25		1 yr.	M.A.	
					5.5	20/15	T. 1.	+ .25				
N.	40	M.	Brun.	Brown	5.0	20/15	T. 14.	+ .25		2½ yrs,	M.A.	
					4.0	20/15	T. 14.	+ .50				
B.	32	M.	Brun.	Dark brown	4.0		T. 1.	Bed.		2½ yrs.	F.A.	Died 21 days later.
					5.0		T. 1.					
H.	31	M.	Brun.	Brown	4.0		T. 2.	Bed.		2 yrs.	F.A.	Died 8 days later.
					4.0		T. 2.					Laryngitis.
D.	61	M.	Blonde	Light brown	3.5			Low H.		4 yrs.	F.A.	
					3.5							
S.	30	M.	Blonde	Green-gray	4.0			H.	Hyalin masses on borders	2 yrs.	F.A.	
					4.0				of both discs.			
B.	31	M.	Blonde	Light brown	3.0		T. 12.	H.		6 mos.	F.A.	
					3.0		T. 14.					
H. D.	14	M.	Blonde	Blue	7.0		T. 1.	H.		Since infancy	M.A.	Potts disease.
					7.0		T. 1.					
McG.	36	M.	Blonde	Blue	4.0			Bed.		2 yrs.	M.A.	
					4.0							
A.	56	M.	Brun.	Blue	4.5		T. 8.	H.		2 yrs.	F.A.	Luetic.
							T. 8.					
D.	58	M.	Brun.	Brown	4.0	High astig	+5.00 T. 4.	Bed.		1 yr.	F.A.	Diabetes. Valvular
					4.0		+5.00 T. 14.					heart.
V.	54	M.	Blonde	Blue	3.0		T. 6.	Low M.		3 yrs.	M.A.	Tubercular hip.
					3.5		T. 4.					
F.	48	M.	Brun.	Brown	8.0		T. 12.	H.		2 yrs.	F.A.	
					8.0		T. 12.					
M.	36	M.	Brun.	Gray	3.5			Bed.	Conjunctiva congested.	15 mos.	F.A.	Died 17 days.
					4.0							
W.	..	M.	Brun.	Gray-brown	6.0		T. 1.	Bed.	Paralysis left external	14 mos.	F.A.	Paralysis right sixth.
					6.0		T. 1.		rectus.			

Name	Age	Sex	Type	Iris	Pupil	Vision		Refraction	Fundus	Duration	Complications & Accompanying Diseases	Remarks
						Far	Near					
H.	50	M.	Brun.	Brown	4.5 4.5		T. 1. T. 1.	Bed.		2 yrs.	M.A.	Died next day.
B.	30	M.	Colored	Brown	4.0 4.0			Bed.		1905	F.A.	Luetic.
MacD	49	M.	Brun.	Light Brown	4.0 3.5			H. H.		2 yrs.	F.A.	
S.	64	M.	Brun.	Brown	4.5 4.5		T. 14. No Jaeger.	H.	Comitant squint left in 30 degrees.	2 yrs.	F.A.	
M.	17	M.	Brun.	Brown	3.5 3.5	20/20 20/20	T. 1. T. 1.	— .50=— .50 ax 180 — .50=+1.00 ax 165	Right eye turns out 30 degrees from infancy.	1 yr.	M.A.	
S.	35	M.	Brun.	Brown	3.5 3.5	20/30 20/20½	T. 1. T. 1.	+ .25=+ .50 ax 60 +1.00=+ .75 ax 60	Blepharitis chronic conjunctivitis.	6 mos.	M.A.	Diabetes.
P.	56	M.	Brun.	Blue	4.5 4.0	20/30 20/30	+3.00 T. 1. +3.00 T. 1.	+ .50=+ .50 ax 30 + .50=+ .50 ax 150		7 mos.	M.A.	Pleurisy effus.
R.	68	M.	Blonde	Blue	5.0 4.0	20/100 20/100	T. 2. T. 2.	+ .50=+1.00 ax 120 +1.00=+ .50 ax 60		3 yrs.	M.A.	
P.	22	M.	Brun.	Green	4.0 4.5	20/50 20/50	T. 1. T. 1.	—1.00 ax 30 —5.00=+1.50 ax 105	Vascular fundus.	6 mos.	Incipient.	
P.	54	M.	Brun.	Light brown	3.5 3.5	20/50 20/20	+3.00 T. 8. +3.00 T. 1.	+.25=+2.75 ax 165 +.50=+1.25 ax 180	Neg. Neg.	2 yrs.	M.A.	Lower third cornea right eye rough.
M.	40	M.	Brun.	Light brown	3.5 3.5	20/20 20/15	+1.25 T. 8. +1.25 T. 6.	+.75=+1.00 ax 120 +.75=+ .50 ax 75	Neg. Granular macula	3 yrs.	F.A.	
H.	31	M.	Brun.	Dark brown	3.5 3.0	20/30 20/15	T. 1. T. 1.	—1.50 ax 180 — .75 ax 180	Neg. Neg.	2 yrs.	M.A.	
F.	32	M.	Brun.	Light brown	3.5 3.5	20/20 20/15	T. 1. T. 1.	Emmet. Emmet.	Neg. Neg.	1 yr.	M.A.	
B.	39	M.	Blonde	Gray	5.0 3.5	20/20+ 20/30	T. 1. T. 6.	— .50 ax 180 — .50=+2.50 ax 90	Neg. Neg.	2 yrs.	M.A.	Eleven severe hemorrhages from the lungs, pterygium left eye.
S.	45	M.	Brun.	Gray	3.0 3.0	20/15 20/15	T. 1. T. 1.	Emmet. Emmet.	Neg.	3 mos.	Incipient.	
D. S.	30	M.	Colored	Brown	3.0 3.0	20/20 20/20	T. 1. T. 1.	— .50 ax 60 — .50 ax 90	Neg.	1 yr.	F.A.	
M.	44	M.	Brun.	Gray	3.5 3.5	20/30 20/15+	T. 6. T. 6.	+1.00 ax 165 + .50	Neg.	15 mos.	M.A.	
M.	34	M.	Brun.	Brown	3.0 3.0	20/30 20/30+	T. 2. T. 6.	+ .50 —1.00 ax 165		3 yrs.	F.A.	
B.	28	M.	Blonde	Blue	3.5 3.5	20/100 20/20	T. 10 T. 1.	+3.25=+2.00 ax 90 + .50	Venous pulse	1 yr.	Incipient.	
L.	16	F.	Blonde	Gray	3.5 3.5	20/15 20/15+	T. 1. T. 1.	— .25=+1.00 ax 75 — .50=+1.00 ax 90	Congested fundus	2 yrs.	M.A.	
P.	32	F.	Colored	Brown	3.0 3.0		T. 1. T. 1.	Bed.	Neg.	6 mos.	F.A.	Died 14 days later.
R.	49	F.	Brun.	Light brown	3.5 3.5	20/200 20/200	+8.00 T. 1. +8.00 T. 1.	+4.50 Bed. +4.50	Irregular area of exudate beneath retinal vessels.	1½ yrs.	F.A. Tay's choroiditis.	
G.	69	F.	Blonde	Blue	3.0 3.0	20/40 20/50	T. 12. T. 14.	+ .75=+ .50 ax 75 + .50=+ .75 ax 120	Incipient anterior cortical cataracts.	2 yrs.	F.A.	
P.	39	F.	Blonde	Blue	3.5 3.5	20/15 20/15	T. 1. T. 1.	+ .25 ax 90 + .25 ax 90		1½ yrs.	M.A.	
O.	32	F.	Brun.	Brown	3.0 3.0		T. 1. T. 1.	Bed.			F.A.	Paralytic. Died 2 days later.
H.	42	F.	Blonde	Gray	3.5 3.5		T. 1. T. 1.	Bed.		5 yrs.	F.A.	
L.	17	F.	Brun.	Green-gray	4.5 4.5		T. 1. T. 1.	Bed.	Granular macular.	8 mos.	F.A.	
C.	38	F.	Brun.	Light brown	4.0 4.0		T. 1. T. 1.	Bed.		1 yr.	F.A.	
R.	42	F.	Brun.	Dark brown			T. 12. T. 12.	+ .50 ax 180 + .50	Congested conjunctiva.	8 mos.	F.A.	
W.	36	M.	Brun.	Blue	3.5 3.5		T. 1. T. 1.	Bed.		2 yrs. 3 mos.	M.A.	Laryngitis T. B.
M.	24	M.	Blonde	Blue	5.0 5.0			Bed.	Almost complete milky opacity right lens posterior nuclear opacity with anterior cortical spicula left lens.		F.A.	Died next day. Diabetes.
M.	37	M.	Brun.	Brown	3.5 3.0	20/40 20/40	T. 2. T. 2.	+1.00 +1.00	Disc pale.	2 yrs.	F.A.	
S.	18	M.	Brun.	Gray	4.5 5.0	20/15 20/15	T. 1. T. 1.	+ .25 + .25	Vessels unchanged.	1½ yrs.	Incipient.	Tuberculous hip.
D. S.	54	M.	Brun.	Gray	3.0 3.0	20/30 20/40	T. 2. T. 12.	+2.50 +2.50=+1.00 ax 165	Veins prominent.	3 yrs.	F.A.	
T. S.	17	M.	Brun.	Gray	3.0 3.5	20/20 20/20	T. 1. T. 1.	— .50 ax 30 — .50 ax 150			Incipient.	Glands both neck removed.

Name	Age	Sex	Type	Iris	Pupil	Vision Far	Vision Near	Refraction	Fundus	Duration	Complications & Accompanying Diseases	Remarks
K.	38	M.	Blonde	Blue	3.5 3.5	20/100 20/100	T. 1. T. 1.	−2.00=+3.00 ax 90 +1.00 ax 165		1 yr.	Incipient.	
O.	17	F.	Blonde	Green	5.5 4.0	20/20 20/20	T. 1. T. 1.	+ .50 ax 90 + .50 ax 90		8 mos.	Incipient.	Pleurisy effus.
T.	60	M.	Brun.	Gray	4.0 3.0	20/30 20/30	+3.00 T. 2. +3.00 T. 4.	+1.00 +1.00	Veins compressed, tortuous Siery arteries.	5 yrs.	F.A.	Renal.
G.	60	M.	Brun.	Blue	4.5 4.5			+ .75 + .75		6 mos.	Incipient.	
K.	..	M.	Blonde	Blue	—4.0 4.0	20/200 20/100	T. 1. T. 12.	−2.25 +1.00+= .50 ax 120	Nerve sheath above. Macular degeneration pigment.			
G.	42	M.	Blonde	Gray	4.0 5.0			+3.00 +3.00		3½ yrs.	F.A.	
W.	66	M.	Brun.	Brown	4.0 4.0			Bed.	Out 30 degrees, no paresis.	2½ yrs.	F.A.	Died 4 days. Emphysema.
H.	58	M.	Brun.	Brown				Bed.		2 yrs.	F.A.	
Q.	51	M.	Blonde	Blue	3.5 3.5	20/15 20/15	+3.00 T. 1. +3.00 T. 1.	+ .75 + .75		4 yrs.	F.A.	Emphysema.
B.	50	M.	Brun.	Brown	4.0 4.5	20/50 20/40		+1.00=+ .50 ax 180 + .76=+ .50 ax 165		1 yr.	F.A.	
L.	51	M.	Brun.	Brown	4.5 4.5	10/200 20/40	T. 8. +3.00 T. 1.	+1.00 ax 180 + .50 ax 180	Lateral nystagmus. Right several glistening masses in the macular region.	2½ yrs.	F.A.	Positive Wassermann reaction.
B.	40	M.	Brun.	Brown	3.5 4.0	20/100 20/100		+ .25=+ .50 ax 120 + .50 ax 150		5 yrs.	F.A.	Tuberculous hip.
M.	38	M.	Brun.	Brown	3.5 4.0	20/20 20/40	T. 4. T. 4.	+ .25=+ .50 ax 105 +1.25	Large pinguecula.	1 yr.	M.A.	
E.	32	M.	Blonde	Blue	3¾ 4.0	20/30 20/30	T. 1. T. 2.	+1.00=+2.00 ax 15 +1.00=+2.00 ax 165		8 mos.	M.A.	
McC.	40	M.	Blonde	Blue	4.0 4.0	20/70 20/70	+3.00 T. 2. +3.00 T. 2.	+1.25=+ .50 ax 180 +1.25		1 yr.	M.A.	
S.	36	M.	Blonde	Blue	3.0 3.0	20/100 20/15	T. 2. T. 1.	+ .25=+2.50 ax 105 + .75	Connective tissue on right disc.	1 yr.	M.A.	
H.	40	M.	Blonde	Blue	4.5 5.0	20/30 20/30	+3.00 T. 1. +3.00 T. 1.	+ .25 − .25=+ .50 ax 90	Large pinguecula.	2 yrs.	F.A.	
H.	44	M.	Blonde	Gray	3.5 3.5	20/200 20/100	T. 6. T. 2.	+4.25=+2.75 ax 75 +4.00=+1.25 ax 150		7 mos.	M.A.	
L.	15	F.	Blonde	Gray	5.5 6.0	20/20 20/15	T. 1. T. 1.	+ .25 ax 65 + .25 ax 15		1 yr.	M.	
H.	41	M.	Blonde	Blue-green	5.0 5.0		+3.00 T. 1. +3.00 T. 1.	Bed.	Cilio retinal vessel out. Granular macula.	2½ yrs.	F.	
H.	38	M.	Brun.	Brown	4.0 4.0		T. 1. T. 1.	Bed.		1 yr.	M.	
H.	41	M.	Brun.	Brown	4.0 4.0	20/40 20/20	T. 1. T. 3.	+1.50 +1.50		2 yrs.	F.A.	
M.	..	M.	Blonde	Blue-gray	4.0 4.0	20/30 20/30	T. 1. T. 1.	+1.00 ax 150 + .50=+ .50 ax 150		1 yr.	F.A.	
M.	15	F.	Brun.	Brown	6.0 4.0	20/30 20/30	T. 1. T. 1.	+ .50=+ .50 ax 90 + .50=+ .75 ax 165		6 mos.	Incipient.	
K.	..	M.	Brun.	Brown	8.0 8.0			Bed.		15 mos.	F.A.	
G.	36	M.	Blonde	Blue-gray	6.5 5.5			H.		15 mos.	F.A.	
H.	28	M.	Blonde	Blue-gray	3.5 3.5		T. 6. T. 1.	Bed.	Connective tissue on the disc.	1 yr.	F.A.	Laryngitis.
S.	25	M.	Brun.	Brown	5.0 4.0		T. 1. T. 1.	Bed.		6 mos.	F.A.	
G	56	M.	Colored	Brown	3.0 4.5	20/15 20/15	+3.00 T. 1. +3.00 T. 1.	H.		3 mos.	Incipient.	Diabetes.
H.	43	M.	Blonde	Blue	3.0 3.0	20/30 20/20	T. 1. T. 1.	H.		1 yr.	F.A.	
F.	40	M.	Blonde	Blue	3.0 3.0			Bed.		1 yr.	F.A.	

In recording the near vision a card made by Dr. S. Lewis Ziegler of Philadelphia has been used.
Type 1 equal to 0.37 D.
Type 8 equal to 1.00 D.
Type 12 equal to 2.00 D.
Type 20 equal to 8.00 D.

The lack of scientific accuracy is admitted but for two reasons testing the range of accommodation was impracticable first. many of the patients were too illiterate for exhaustive subjective tests and second the inability to give each separate case sufficient time.

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Discussion.

Dr. Wilbur B. Marple, New York City:—Nowadays we read in our journals many papers which are founded entirely on the writer's "impressions." In others again the essayist cites one or two cases and from these he draws conclusions which it is preposterous to base on such meager clinical data.

Dr. Bedell has not erred in either of the above ways, and he is to be congratulated on the thorough and painstaking manner in which he has carried out his observations. His report is certainly a model of what such a contribution should be. He has also been very wise in drawing no conclusions from his observations, but merely offering them as a contribution to the elucidation of the question as to whether eye strain may or may not be an etiological factor in the production of pulmonary tuberculosis.

I suppose I have had my share of cases in which a suprising improvement in the health and appearance has followed the correction of refractive errors, and I appreciate the importance especially in young and developing patients of a careful correction of these errors. I must confess, however, that I have been quite skeptical in reference to the rôle such errors might play in the production of tuberculosis. It may be that this rôle is an important one. If it is, it cannot be proven to be such by one or two cases as some reports on the subject would have us believe, but only by a large number of cases carefully observed as Dr. Bedell has done. Furthermore, where a refractive error, or anything else productive of eye strain is found, a great many cases must be followed in order to determine how much, if any effect the correction of this eye strain has on the tuberculous process. The most difficult thing in medicine as we all know is to decide whether it is a case of "post" or one of "propter"; to decide whether correction of a refractive or other error in a tuberculous patient had anything to do with the subsequent improvement in that patient or not. It is only by such work as Dr. Bedell has done that this problem can be solved, and I trust that he will be able to follow up these cases in the manner suggested above.

As to the matter of the inequality of the pupils in pulmonary tuberculosis, while it occurs, it certainly does not occur with sufficient frequency as to be considered a symptom of much clinical value. Dr. Bedell did not find it much more frequently among the tubercular cases than among his private patients. One authority on tuberculosis writes me that "it occurs once in ten cases"; another that "it occurs infrequently."

In conclusion I can do no better than to quote Dr. Bedell's words: "It may be possible after long and exhaustive study to decide how great an effect the need of glasses plays in the rôle of pulmonary tuberculosis."

PELLAGRA.*

By G. KIRBY COLLIER, M.D., F.A.C.S.,
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ONE of the most interesting features of the medical history of recent times, which has been so fertile in sensational scientific events, has been the sudden coming to the front of the problem of pellagra. In this climate we have seen very little pellagra, so far, but in the Southern States, it has become a serious problem, and is destined to become a national one. Except for the occasional case of pellagra, this disease has passed unnoticed for a number of years, and our text-books give but scant mention to it, many of them even stating that the disease was never found in this country.

Pellagra is prevalent in Italy, the south of France, Spain and Egypt, and was observed as early as 1735, and was described by Frapolli in 1750, he giving it the name pellagra (pelle-agra) meaning rough skin.

The disease was first recognized to be prevalent in this country in 1906, although sporadic cases had been reported long before that time, and according to the reports of the United States Public Health Service, the disease is now prevalent in Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas and Arkansas and sporadic in all the other states save nine. In New Hampshire, Minnesota, Montana, North Dakota, South Dakota, Utah, Wyoming and Nevada, there have been no cases of pellagra reported. During the short period that the disease has been recognized in this country, it has claimed, according to the reports of the United States Public Health Service, not less than 30,000 victims, with a fatality rate in excess of 39 per cent, and it is indeed a condition that we should all stop and consider. In 1906, according to Russell,[1] there were 72,000 persons in Italy, infected with pellagra. The disease is rapidly increasing, and has become a national problem.

There have been many theories advanced as to the causative factor or factors of pellagra, but up to this time, none of these have been proven. The maize theory certainly has not been proved as yet, for pellagra is found where corn is neither grown nor eaten. It was thought that a certain mold found on spoiled maize or the low nutritive value of maize, was productive of the disease.

Pellagra was first noticed in those countries situated near the limit of corn culture, where the ripening of the grain was imperfect, and the variations in the disease seem to correspond to the variations in the crops. Thus, often after an unseasonable year, the disease would break out in sudden explosions in the spring, and assume an epidemic character, and then with the coming of better crops its violence would abate and only sporadic cases occur.

Among the many other theories advanced are the following: Reed[2] advances the idea that the fungus—diplodia zeae—is a possible factor. Sambon believes the sandfly or buffalo-gnat to be the carrier of the infective organism. Rohrer[3] ascribes the disease to the fungus-aspergillus fumigatus. Auld[4] thinks it due to a magnesium infiltration from the ingestion of maize. Tizzoni and Wood[5] have isolated a bacillus which they give as the cause, and Raubitschek believes the cutaneous lesions to be due to an alimentary poison, probably a lipoid constituent from corn, plus the chemical rays of sunlight. Roberts[6] has endeavored to show that the mosquito was responsible. The body louse, flea and the bedbug have each been considered by some as the intermediate host of the infective organism, and disputed by other investigators.

In a recent report from the Italian Government Commission appointed to study the disease, Allessandrini and Scala, advance the theory that pellagra is caused by the presence in drinking water of silica in the colloidal state. They have shown that patients improved when given a different drinking water, and that injections of sodium nitrate solutions was followed by improvement.

As you can see, there has been but little advancement made toward a satisfactory solution of the etiology of the disease.

In a report by Grimm[7] of the United States Public Health Service, on the epidemiology of the disease, in which he obtained data relative to 1,426 cases, the following conclusions are drawn:

"*Sex*—More cases were found among the females of each race than among the males.

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* Read at the Annual Meeting of the Seventh District Branch, of the Medical Society of the State of New York, at Geneva, N. Y., September 23, 1915.

Race—More cases were found among the whites than among the negroes.

Age—More cases developed the disease at ages between twenty and forty years than at other periods of life.

Case Mortality Rate—The case mortality rate is higher among the negroes than among the whites, highest among the colored females, and lowest among the white males.

Case Insanity Rate—The case rate of insanity incidence is higher among the negroes than among the whites, and higher among the males than among the females.

Marital Condition—Among the married and widowed pellagrins, the females predominate; the single pellagrins are equally divided among the sexes.

Environment—More cases occurred under conditions of poverty than of comfort, and more cases under conditions of comfort than of affluence.

Location of Homes—More cases developed in persons living in small towns and villages than among those living in the rural districts.

Relation of Cases—More cases developed in the immediate vicinity of other cases than otherwise.

Food—The relationship existing between the cases of pellagra in this series and the character of their food supply, admits, at present, of no conclusion. In investigations of this character, however, this relationship demands consideration.

Incidence—Pellagra seems to have been on a gradual but constant increase in the districts visited, with the possible exception of the year 1912.

Prevalence—Pellagra is more prevalent than is ordinarily considered, even by the physicians practicing in the so-called pellagrous communities, and there are many persons in pellagrous communities who present symptoms of a mild pellagrous condition, which do not ordinarily come to the attention of the physician on account of the mild nature of the symptoms."

It is, I believe, well recognized that the disease is not communicable by contact, for there have been no reports of physicians, nurses or attendants ever having contracted the disease by attending patients suffering with pellagra.

Pellagra is seen in two forms, the acute fulminating type, and the chronic form with seasonal recurrences.

The acute type runs a course of from a few weeks to a few months, and is usually fatal. If recovery takes place, the disease returns again the following year and is then classed as chronic.

In the chronic form we see two types. In one the disease appears in the spring, runs a course more or less severe during the summer, has almost a complete remission during the winter, and recurs the following spring. In the other, a rarer type, exacerbations occur both in the spring and in the fall, with summer and winter remissions. In the chronic form the spring exacerbations become more and more severe and the disease is usually fatal in from two to seven years.

The pathology of pellagra has not been put on a very definite basis. Harris[8] states that there are degenerative changes in the chromophilic cell of the cortex of the cerebrum, and in the cerebellum, the cells of Purkinje, undergo a degeneration, which later may account for the ataxia seen in many cases. In the spinal cord, cell degeneration is noted and may go on to a cell destruction, the posterior columns being usually involved. No positive evidences of alterations in the peripheral nerves has been noted. There is a congestion and a thickening of the leptomeninges, and sometimes the formation of osseous plaques. Fatty degenerations and ulcerations have been noted in the viscera.

Pellagra is an endemic trophic condition or disease of toxic origin, with vernal manifestations, and characterized by gastro-intestinal, cerebro-spinal and cutaneous manifestations. In its milder forms the disease may be ushered in by languid tired feelings, a disinclination for any kind of work, and by nausea and vomiting. Or again, the patient may experience a peculiar feeling of heaviness about the head, a sensation of vertigo and a mental depression. Most often pellagra has no percussory symptoms and the disease is ushered in by its cutaneous manifestations, the regions most often affected being the hands and feet, the neck and face, and such portions of the body as are usually uncovered. Stomatitis is an early symptom, the tongue being swollen and having the appearance as though the superficial mucous membrane had been removed, and the mucous membrane of the mouth being red and sore.

Vomiting occurs as a rule and a diarrhea is present in nearly all cases, accompanied by tenesmus and abdominal pain. There is a loss of weight, but as a rule there is no great elevation of temperature. The cutaneous manifestations are constant, the epidermis first appearing red and more or less roughened, soon shows a swelling and thickening with a consequent fissuring and ulceration. These changes are first noticed on the hands, feet, neck and face, and this thickening of the skin of the hands gives rise to the so-called "gauntlet or glove" of pellagra.

Desquamation takes place in from one to six months and sloughing is often seen. Should the lesions heal after the desquamation and sloughing, the skin has a glistening reddish appearance.

Exposure to the sun causes an exacerbation of the skin symptoms. The extremities become somewhat spastic with increased tendon jerks. Burning pains in the hands and feet are quite severe, and there is a marked general weakness. Mentally there is an apathy, a lack of spontaneity and a masklike expression, denoting a marked depression or dementia. Anxiety periods accompanied by motor unrest, involuntary movements and even convulsions are noted.

The case that I wish to report is of interest from the fact that up to this time, there have been but few cases reported from New York State, and as far as I can learn, but one case from western New York. This last case was reported from Hornell, N. Y.

Our case was one of comparatively sudden onset and rapid termination.

J. J., age thirty-eight years, was admitted to the Craig Colony for Epileptics on April 27, 1913, from New York City, where he was born. His occupation was that of a butcher, and he stated that he had always lived in New York City, leaving there for the first time when he came to the Craig Colony. His father died at the age of twenty-nine years. He was a matchmaker by occupation. Mother living and well. Patient had measles, pertussis and scarlet fever during early life, and when twenty-three years of age, he received a blow on the head, following which he began to have grand mal seizures. Is said to have had infantile convulsions from the fifth to the eighteenth month of life, and then none until twenty-three years old.

While at the colony he averaged about two to three seizures a month. These were frequently followed by periods of ambulatory automatism and mental confusion. There also occurred periods of mental confusion independent of the seizures. He was rather dark skinned with receding forehead and thick lips. Showed numerous old scars and the remains of an acneiform eruption. He showed no evidences of syphilis and a Wassermann was negative. At the time of admission to the Colony he showed evidences of a pulmonary tuberculosis, and was cared for in the tubercular pavilion. Mentally, he passed the Binet-Simon test at a level of ten years.

Patient first noticed a brownish discoloration of the hands about the first part of June, 1915. This change was rather slight at first, but two or three weeks later, he noticed the same change taking place in the skin of the face and neck. This brownish discoloration became more marked, the skin of the hands assuming a leathery appearance and feel, and the skin of the face being of a deep brown color and very rough. The lines of demarcation on the neck and forearms, between the normal and the involved skin, were very distinct. The skin of the trunk and all other portions of the body save the hands, wrists, face and neck, showed absolutely no change whatever, being of normal feel and color. The skin of the hands soon began to show some cracking or fissuring, and peeling at these points.

The mucous membrane of the mouth was very much reddened and inflamed, and the tongue gave the appearance as though all the epithelial layer had been removed. A diarrhea appeared with the onset of the skin lesions, and became very troublesome. Patient became very untidy, paying but little attention to his person. As stated above, he had a pulmonary tuberculosis, later showing signs of cavity formation in the left side. His mental failure was rapidly progressive, accompanied by extreme physical weakness. The mouth condition caused patient much discomfort, and he required constant care for some time prior to his death on September 4, 1915.

Unfortunately we were unable to obtain an autopsy in this case.

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THE STANDARDIZATION OF CONDITIONS AFFECTING POSTURE.*

By **HENRY LING TAYLOR, M.D.,**

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APPRECIATING the close relation between good postures and health and efficiency, a number of experts in hygiene, physical training, general education, and orthopedic surgery, organized about two years ago, the AMERICAN POSTURE LEAGUE.

Its objects are to study the conditions affecting posture, and to apply the results of research to improve these conditions.

It was found that the principal causes of bad posture were lack of vigor, habitual fatigue, lack of a sense of and interest in good posture, and the adverse influence of fashion, and of articles of clothing, furniture, seating arrangements, and occupational conditions, including school life.

It is surprising that articles like clothing and furniture, which profoundly affect our postures, health and comfort, appear to be designed almost without regard to the form and functions of the body.

It was discovered by one of our experts that ready made coats for boys were often cut to fit a round back model, and consequently tended to coerce a straight boy into a vicious posture. This matter was taken up with a large concern, and they have remodeled their clothing to proper form, and it now bears the League's label of approval.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 28, 1915.

The Committee on Garment Supporting Devices has adopted the principles that the weight of garments should hang from the shoulders near the base of the neck, and from the pelvis above the hips; not from the tips of the shoulders or from the waist.

The Committee on Shoes finding that foot wear is constructed without reference to the shapes or types of feet, collected through the members of the League a thousand foot tracings which it studied and classified.

It found several types of feet, which are considered in its classification of shoes, and in suggestions to manufacturers.

The Furniture Committee has had many chairs submitted to it, but so far has only been able to approve one, Dr. Mosher's Kindergarten chair.

It was, however, asked to design in co-operation with the company's engineers, the seats of the new subway car of the Brooklyn Rapid Transit Company.

This design was based on hundreds of measurements of the clothed body, and on anatomical and physiological principles, and the use to which it was to be put. It is probably the first seat in a public conveyance to have this advantage. This seat is comfortable and practical; it supports the body in a correct and restful posture. The design was adopted by the Brooklyn Rapid Transit Company and several of the cars are already in use; six hundred have been ordered.

Considerable attention has been paid by school hygienists to the construction of school furniture, but with the exception of the Kindergarten chair already mentioned, no models have been submitted to the League which could be entirely approved.

The League, however, has received the cooperation of an important manufacturing concern, which will make chairs according to the League's designs.

The League has also issued two wall charts, one showing a girl, the other a boy in good, bad and exaggerated standing posture. These are useful in schools, gymnasiums, doctor's offices and in homes, in demonstrating good posture, and make a strong appeal. The first chart has already had a wide distribution; the second is just issued.

These are a few examples of the activities of the American Posture League. In a number of other important directions its Technical Committees are at work, and its educational activities also cover varied lines.

The last activity of the kind to be mentioned here is its contribution by invitation to the New York State University, educational exhibit at this meeting. Physicians and all interested are invited to inspect this collection of photographs and charts illustrating good and bad postures; you will find it interesting, suggestive and helpful.

Discussion.

Dr. Wisner R. Townsend, New York City: I do not think such an admirable paper as this should pass unnoticed, although it is a difficult proposition to enlist interest in such a subject after having heard from an extraordinary man like Dr. Crile. However, as a simple exponent of orthopedic surgery, working in the same line and deriving information from some of Dr. Crile's work, I believe a great deal of surgery will not be necessary if we will educate people as to proper posture when riding and walking.

I take great pleasure in congratulating Dr. Taylor and the section on the type of work he has brought before us. More of this work is what we want. It is a labor of love. It is not going to be paid for except in rare instances.

Dr. Henry Ling Taylor (closing): I wish to say that we have made arrangements with a manufacturer to put out furniture designed on proper anatomical and physiological lines. He is willing to do the work as it ought to be done. This is a large commercial venture, as it will cost thousands of dollars to change the machinery to get out good chairs, and we feel that the movement ought to be supported.

REPORT OF A CASE OF PRIMARY MELANOTIC SARCOMA OF LUNG PRESENTING DIFFICULTIES IN DIFFERENTIATING FROM TUBERCULOSIS.*

By O. F. KUNKEL, M.D.,
BELLS CAMP, PA.
and
EDWARD TORREY, M.D.,
OLEAN, N. Y.

We desire to report this case for a twofold reason: First, because of the difficulty it presented in diagnosis, and second, because of the scarcity of similar cases in literature. We believe that by recording our mistakes we can often do as much good as we can by recording our successes.

Miss K. B., aged forty, had a negative family history as regards tuberculosis. Her maternal grandmother and one aunt died of cancer. The patient had diseases of childhood and was never very robust until five years ago. About eight years ago she had what she considered a hard "cold" which lasted for nearly two years. After recovering from this, she was better than ever before. In October, 1913, patient began feeling badly but continued to work and did not consult a doctor. She felt tired, had no energy and was bothered a great deal with what she considered a nervous dyspepsia. This condition improved, but in the spring of 1914 she again lost energy, had no appetite and about May 1st, began spitting blood. Two weeks before the onset of the hemoptysis, the patient took from a shelf a small box which slipped out of her hand. In falling, a corner of it struck a rather sharp blow on her chest to the right of the sternum. For a moment this caused a slight pain but nothing more was thought of the incident until after the onset of the bleeding.

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* Read at the Annual Meeting of the Eighth District Branch of the Medical Society of the State of New York, at Olean, September 22, 1915.

(At the time, this incident was not considered as having any etiological relation to the condition. The final findings in this case are very suggestive and interesting in this connection.)

The amount of blood probably averaged about one dram a day: some days being less, other days more, but never over half an ounce. There was a slight cough. During a two weeks' temperature observation, the minimum record was 97.6 and the maximum, 99.6. The daily variation was about 1.4 degrees. The pulse and respirations were practically normal as a rule but occasionally were accelerated.

The chest was well formed and showed no abnormal signs on inspection. Percussion disclosed a slight impaired resonance at both apices. Auscultation presented the following signs: Expiration was slightly prolonged above clavicles; the top of the left lung showed rough and interrupted breathing; the whispered voice was abnormally transmitted over the dorsal vertebrae; after a short cough followed by a quick inspiration, fine but very distinct rales could be heard above the second rib on both sides, while under the sternum these rales extended as low as the third rib. The left side on back showed rales above the spine of scapula and the right side, slightly lower.

On the strength of the above findings and the history, together with the temperature record, we did not hesitate to consider this an early case of tuberculosis, involving the mediastinal glands and both apices. The patient was accordingly admitted to Bon Air Sanatorium on June 20th, and placed under the ordinary treatment common to modern tuberculosis sanatoria.

The first month she was kept at rest in bed practically all the time. Her general condition as well as all her symptoms with the exception of raising a small amount of blood each day, showed a marked improvement during this time. Various medicines like the nitrites, calcium salts, pituitrin, emetin, intravenous injections of saline solution, etc., were all tried without any effect whatsoever. One ordinary dose of coagulose (horse serum) was administered, a short time after which the bleeding stopped for forty-eight hours. The point of injection became very sore, the temperature rose to 101, and the patient felt so sick in a general way for twenty-four hours that this agent was not used again. It appeared that she had an anaphylaxis to horse serum although she had never taken any kind of serum before.

Two days later the bleeding returned and continued uninterrupted for a few weeks. During this time we decided to try the tuberculin treatment. Because of the occasional slight elevation of temperature, we selected what is considered the mildest form of tuberculin and injected in small doses at first twice a week, later, once a week. After the first and second doses, the quantity of blood in the sputum seemed to diminish and after the third dose cleared up entirely for a week, but subsequently returned. The temperature up to the time of the tuberculin treatment had a tendency to be unsteady, Subsequently it settled down to normal and remained there or slightly below for five months or up to the time that she developed the pneumothorax.

After the patient had been under treatment for seven months, the conditions were as follows: The pulse, respirations and temperature were normal; the adventitious sounds had nearly all disappeared from the lungs; the cough had practically stopped; the patient looked the picture of health and felt perfectly well. She had gained about eight pounds in weight being about this much heavier than her maximum weight in good health. The sputum which continued bloody and was raised without any particular effort, was examined frequently but never showed any bacilli or malignant cells. The urine was normal. The blood showed hemoglobin, 68 per cent; red cells, 6,312,000; white cells, 9,200.

In December we had a Roentgen plate made. This seemed to show a slight clouding of the apices. The descending arch of the aorta showed a conspicuous shadow and that of the mediastinum was slightly broadened. From the root of the left lung extending downward and blending intimately with that of the heart, was an intense shadow showing areas through which the light was more readily transmitted.

This plate was referred to Dr. Heise who has had an extensive experience in interpreting chest plates. His final opinion was: "She has an enlarged gland where the shadow is. Of course, there is a possibility of its being a new growth, but from the characteristics of the shadow, I hesitate to believe this. The shadow may also be the result of a localized pleurisy, but this also is not probable."

In the early part of January, after careful deliberation, we decided to perform an artificial pneumothorax on the left side with the idea of controlling the bleeding. Although we had no means of being certain, we felt reasonably sure that the bleeding originated from a capillary oozing in the central portion of the left lung. It must be remembered, we still considered the condition as tuberculosis.

A personal illness of Dr. Kunkel caused this operation to be postponed for ten days. In the meantime the patient developed a slight pain in the left side. Three days later, while leaning over the bath tub she felt a gurgling in her chest and next day noticed a shortness of breath. Her hemoptysis now stopped completely and did not return again.

For the same reason above mentioned, the patient was not examined until a week after the onset of this condition. At this time (January 16th) she had all the classical signs of a hydropneumothorax. Her pulse and temperature continued normal; she felt well and all subjective symptoms with the exception of a slight dyspnoea were negative. It now indeed seemed as though nature had performed the operation with perfect results, at least for the time being.

On aspiration the fluid was found to be of a reddish brown color with a specific gravity of 1,030. A sufficient quantity was taken to supply two other laboratories besides our own. Each laboratory was instructed to use special pains in searching for tubercle bacilli and malignant cells. All reported the absence of tubercle bacilli and cells indicating malignant disease. Guinea pigs were also inoculated and showed no evidence of disease on autopsy. A blood examination at this time showed 70 per cent hemoglobin, 5,500,000 erythrocytes, and 8,000 leukocytes. A radiograph confirmed the physical examination findings.

The patient continued to be in very good physical condition with all subjective symptoms excepting the shortness of breath, negative. About the middle of February or five weeks after the onset of the hemo-pneumothorax, the pressure symptoms suddenly became quite severe on which account thirty ounces of fluid were aspirated. The macroscopic appearance was the same as the first specimen.

Through the kindness of Dr. C. L. Bradford, this particular specimen was examined in a Pittsburgh laboratory and an extraordinarily large number of endothelial cells reported. While we had been watching closely for some months for signs of malignancy, this was the first strong evidence we could score toward such a diagnosis.

In making this particular aspiration, a trocar two millimeters in diameter was inserted in the sixth interspace of the midaxillary line. Considerable force was necessary to insert the instrument. This indicated a thick, leathery pleura. During the first twenty-four hours following this operation, there developed considerable swelling and pain at the point of puncture. Later, this swollen area became discolored as it would from any subcutaneous extravasation of blood. Undoubtedly it was caused by some of the effusion leaking through the pleural puncture. After a few days the patient developed patches of similar discoloration without any swelling or soreness, in the left groin and over the lumbar vertebrae. These patches were about three centimeters in diameter and disappeared in a short time. The swelling at the point of puncture diminished in size and the soreness disappeared in a few days. An area of about eight centimeters in diameter continued to show signs of induration and after the first week seemed to become larger. The central part of this mass softened and showed slight signs of fluctuation as though pus were forming. We aspirated a small amount of material resembling clotted blood which under the microscope showed many mitotic cells.

The same day on which we aspirated the thirty ounces of fluid, fever developed, the temperature gradually rising to about 102 F. It remained elevated for about four weeks, but dropped to normal within forty-eight hours after the first injection of serum prepared from her pleural effusion, and remained so for ten days. After this or for eleven days prior to death, it was subnormal.

In subsequent aspiration we used a smaller caliber needle and experienced no more unpleasant after effects. We sent some of the second specimen of fluid to Dr. Charles E. Simon, of Baltimore. He reported mitotic cells and agreed with the previous opinions. He suggested autoserum therapy. Accordingly the fluid aspirated was collected under aseptic precautions and after proving its sterility, the cells were separated by centrifugation and the serum injected. No effect beyond the favorable influence on temperature was noted.

From the time that we were required to make the first aspiration (February 14th) the patient failed very rapidly. This failure apparently was due to three causes: (1) Exsanguination through pleural exudate; (2) absorption of toxic material from new growth; (3) deranged digestive apparatus due to mechanical interference with return circulation of blood from abdomen.

After the middle of February the fluid had to be aspirated every three to seven days. During the latter part of March, the patient suffered considerable pain in her chest as well as discomfort in her abdomen. She died April 5th.

Autopsy.—The left lung was collapsed into a very small mass. The pleural cavity contained air and about a gallon of a brown or almost "coffee ground" colored fluid. The parietal pleura was involved at the area where we had made our puncture with the trocar. The mediastinal glands, were enlarged, ranging from four to six centimeters in diameter.

The body of the right lung appeared quite normal except for two small calcified tubercles which could be felt immediately under the pleura over the upper lobe.

The heart was displaced considerably to the right, but was negative otherwise.

All the abdominal viscera were examined, but nothing found which would be of interest in relation to the malignant condition.

In the left side with its center in the midaxillary line and sixth interspace, was a mass fourteen centimeters in diameter, and elevated about three centimeters. In its center was a fistulous opening into the chest cavity. We did not note any signs of enlarged superficial lymphatic glands.

Pathological Report.—On section, the right lung showed no evidence of tuberculosis. The primary focus of the tumor apparently was at the hilum of the right lung. Here was found a mass the size of a large walnut which probably was derived from a mediastinal gland. Secondary growth by metastasis rather than by direct extension involved the lower portion of the upper left lobe, and the upper portion of the left lower lobe. The mass in the upper lobe had broken down perforating the visceral pleura, and invaded a large area of parietal pleura. Microscopically the sections of the tumor showed melanotic sarcoma with a large predominance of non-pigmented cells.

Summary and Conclusions.—For eight months the general picture of this case was identical with that of many cases of tuberculosis.

During this time the patient's general condition appeared to improve to about the same degree under sanatorium treatment as would a case of tuberculosis.

The rebellious nature of the hemoptysis was suggestive, but against this had to be considered the fact that malignant disease of the lung as a primary condition is rare and also that it is usually fatal inside of six months.

The autopsy findings would seem to indicate that the fine rales in the apices of the lungs of cases which we consider as early tubercular infiltrations may be caused by enlarged mediastinal glands interfering with either the pulmonary lymphatic or blood circulation.

A secondary growth was implanted into the subcutaneous tissues with an aspirating needle.

The diagnosis of malignancy could not be made until the patient developed an effusion. The true type of malignant tumor could only be determined at autopsy.

Autoserum therapy seemed to have a favorable influence on the temperature.

REPORT OF A CASE OF BRAIN TUMOR IN AN INFANT.*

By **GEORGE A. MARION, M.D.,**

ROCHESTER, N. Y.

CHARLES T. D., was born January 26th, 1913. About July 5th, 1914, when sixteen months of age he showed the first signs of illness, viz.:—Gastrointestinal symptoms, slight fever, vomiting of foamy mucus in the morning. Did not vomit food. Part of time had internal squint at first affecting right eye; later the left eye only was affected. Developed sudden fear of falling when being carried up and down stairs. In June the babe rolled down the porch steps to sidewalk (4 steps). Did not seem to be injured in any way. Gait became uncertain, slightly staggering during the latter part of July. Seemed weaker on his feet, but at times walked naturally.

Mother noticed that about end of July babe would sit at the table eating and suddenly would put right hand to the right side of his head as if in pain and say, "Oh dear." These attacks of pain were of only a few seconds duration and occurred nearly every day. Was called to see him, August 3rd. The stomach and bowels seemed to be disturbed, fever slight, vomited occasionally. The next day he seemed improved. Brought to office August 18th. The symptoms seemed about the same. Was then under Dr. Witherspoon's care until August 30th, when I saw him in a convulsion limited mostly to upper part of body. Later arched backward. August 30th, babe had four convulsions in P. M. and two more August 31st, A. M.

With the idea that gastrointestinal disturbance was accountable for the symptoms, castor oil ℥iij, in divided doses during 24 hours was administered and retained but without result. Dr. Roby was called into consultation in the P. M. of August 31st.

September 2nd, lumbar puncture number one was done by Dr. Roby. Babe became much brighter afterward, called Mama and noticed things. ℥i of fluid was removed, which was clear and contained no cells.

Irrigations brought green or dark brown or flaky stools at different times. Temperature 100°; pulse 90 to 110; respiration 18 to 20. Pulse irregular. Neck and upper portion of spine tense. Considerable jerking of arms when awake. Some oedema of face and eyelids. Slept well and perspired profusely after puncture. Urine negative.

Temperature, pulse and respiration normal for next few days, except that pulse was variable and irregular.

September 6th, vomited a large amount of food (buttermilk) during hard convulsion at

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 27, 1915.

1:25 P. M. Had another mild convulsion during night.

September 7th, slight convulsion at 11 and another during irrigation later. Took food and medicine with relish and retained nutritive enemata. Pulse dropped to 72.

September 12th, Dr. E. L. Hanes, neurologist, was called in consultation and he was inclined to the belief that the babe had tubercular meningitis. Spinal puncture number two was made by him and myself and the fluid examined carefully by experts at the Rochester State Hospital showed nothing.

Babe in stupor most of the time and easily thrown into convulsions by irrigations, rectal feeding, etc.

Dr. F. W. Fowler was called in to examine eye grounds and stated that beginning choked disc was apparent.

September 18th, lumbar puncture number three by Dr. Roby. No improvement following. We had been giving rectal feeding, Mellins' Food ℥iii and glucose ℥i for some time to make up for the small amount of food taken by mouth. These feedings not being well retained on September 19th, we began gavage using a catheter and giving Pept. milk ℥iii and glucose ʒi tid.

September 21st, tonic convulsion in evening lasting forty minutes. Face and eyelids oedematous, also slight oedema in lumbar region along spine. Pulse, average, 112; temperature, 99.5°; respiration, 18.

September 23rd, lumbar puncture number four by Dr. Roby after which babe was quite cyanosed and had cold extremities. After the lumbar puncture on the 23rd babe seemed brighter and more comfortable for 2 or 3 days. On September 26th, had slight convulsive movements of arms and legs lasting from 9:45 P. M. to 10:30 P. M.

September 27th, babe opened eyes for first time for many days.

September 29th, Dr. A. C. Snell examined eyes using cocaine, which failed to dilate pupils and then atropine. His findings did not seem to point to brain tumor. Optic discs negative.

Babe did not retain anything very well, either by stomach or rectum. Teeth set so that gavage was difficult and was followed by emesis. Both methods of feeding, alternately, were fairly successful for next few days, but vomited considerable mucus from time to time. Pulse becoming very variable ranging from 160 to 64 at different times of the day. Temperature and respiration practically normal.

On October 4th, respirations dropped to 12 and were irregular. Pulse, 85; temperature, 100°.

October 6th, at 10:15 A. M., pulse, 72, irregular; temperature, 99°; respiration, 10. At 10:30 A. M., lumbar puncture number five was made by Dr. Roby. At 12 M., pulse, 96; temperature, 99°; respiration, 18. Had convulsions from 11:30 to 12:15, and from 3:45 to 5 P. M. Pulse weak and irregular most of the time.

Babe had several light convulsions next day and during the following night the pulse ran up to 160 at one time.

October 8th, we noticed that the head was growing larger and found it to measure 19¾ inches. Several convulsions every day now. We used bromides and chloroform inhalations in an effort to lessen their severity.

October 10th. Very irritable all day. Could not feed. Any disturbance brought on convulsive movements. These are often checked by irrigating bowels but not so today.

From October 12th to October 20th babe seemed somewhat better. There was some distress, nausea and vomiting after gavage, but the stools were better. There were no convulsions and the pulse was stronger and less irregular.

October 20th, at 1:30, convulsive movements affecting chest and legs began. The head measured 20⅜ inches. The sutures between the parietal bones and between them and the frontal bone were opening up widely. At 4 P. M. Dr. Roby did lumbar puncture number six. The measurement went down to 20⅛ inches or decreased ½ inch. Babe stood it well but had a slight convulsion afterward. During the night had slight convulsions and pulse went up to 144 and respiration was labored, 17 to 22.

A Wassermann was made by Dr. C. O. Boswell and reported positive. This was a surprise and seemed to open up a new field.

October 23rd, Dr. Roby gave babe an intravenous injection of salvarsan and mercurial inunctions were begun. No effect was noticed from these measures.

On October 24th, at 10 A. M., Dr. Roby did lumbar puncture number seven, withdrawing ℥ii of fluid. Babe had convulsions before and after lumbar puncture quite severe in afternoon, but relieved by chloroform. More comfortable next day and had only one convulsion at 1:30 P. M. Specimen of fluid sent to Dr. Field of New York City and another to Dr. Boswell for Wassermann. Both were negative.

There was considerable speculation among the various consultants at different times as to the possibility of an injury to the head at the time of the child's fall down the porch steps back in June, so Dr. L. J. Sanders was asked to make radiographs of the skull with the following result:

"On X-ray examination there appears to be a fracture of the internal table of the occipital bone, ⅞ inch posterior to foramen magnum.

"This fracture appears to extend outwardly through the external table and inwardly upward to join the occipital-parietal suture. Also, there appears to be a fracture through the roof of the left orbit. Studying the development of the occipital bone we find that at birth the bone consists of four distinct parts, a tabular or expanded portion lying posterior to foramen magnum, two condylar parts forming the sides of foramen and a basilar part which lies in front of the foramen The tabular portion only interests us.

"The number of nuclei for this part vary. Usually there are four, at times there is one, or there may be as many as eight. They appear about the eighth week of foetal life and soon unite to form a single piece which is, however, fissured longitudinally and transverse. These fissures cross at right angles in about the middle of the bone and it was probably this undeveloped fissure which we were of the opinion was a fracture. As to what the other shadow is we are unable to say."

Dr. Roby and the writer examined these plates and while our eyes told us that fractures were present, yet we were skeptical in as much as the symptoms and the history of the case did not seem at all to agree with what should have presented had these been the cause of the trouble. Dr. Roby submitted the plates to the inspection and judgment of several experts in Roentgentology and their opinions were that one or more fractures were present.

Babe had convulsion every day after lumbar puncture number seven and on October 29th lumbar puncture number eight was done removing ʒiii+ of fluid and reducing measurements of head from 20⅝ to 20 inches. Convulsions and opisthotonos frequent and prolonged for next two or three days.

November 2nd. Fairly comfortable day; two slight convulsions. Had spells of rapid breathing lasting from ten to fifteen minutes, during which time neck and chest were mottled red and white and legs were cyanosed.

November 3rd. Temperature which had been all along nearly normal shot up to 105°; pulse, 172; respiration, 28 at 2:30 A. M.

November 4th. Pulse, 144 to 164; temperature, 103.5°; respiration, 20 to 28.

November 5th. 8 A. M., pulse, 166; temperature, 105.2°; respiration, 20. No nourishment November 4th or 5th.

November 6th. Pulse, 134 to 170; temperature, 102.5° to 104.5°; respiration, 22 to 32.

November 7th. Babe died at 11:15 A. M., after an illness of four months.

Babe's blood count was practically normal all through his illness.

Autopsy.—No permission to open chest or abdomen.

Skull.—Sutures were so widely open that it was necessary only to press the bones apart with the hands.

The brain substance was so flattened out by pressure of fluid in the ventricles as to be about as thick as ordinary blotting paper. The amount of fluid collected was about one pint. A tumor about the size of an English walnut was found between the optic thalami and was declared to be a glioma (Dr. Bernstein, Providence).

After stripping dura mater from the inside of the occipital bone, no evidence of fracture was discovered, but we did note a curving line running from the middle of the temporo-occipital suture to the posterior portion of the foramen magnum, on either side, viz.:—The lines of ossification between the occipital and condyloid portions of the occipital bone.

The child apparently had been both deaf and blind for several weeks before the end.

Strümpel in a note on localization says that pressure on the corpora quadrigemina gives:—Occulo motor paralysis, reeling gait, blindness and deafness.

The striking features of the case are:—I. Absence of cells at all stages. The length of illness also excluded tuberculous meningitis. II. The misinterpretation of the radiographs—mistaking a normal line of ossification for a fracture. III. The apparent discrepancy in the two examinations of the eye grounds, which now appear to be easily explained. Early in course of the disease the intracranial pressure became great, the jagged edges of the sutures of the cranium held fast and oedema of the optic discs appeared. Later, the pressure increasing, the grip of the suture lines was broken, the amount of pressure relieved and the choked disc disappeared.

SUB-ACROMIAL BURSITIS AND CONCRETIONS.*

By WILLIAM W. PLUMMER, M.D.,
BUFFALO, N. Y.

THE recent literature has presented several interesting and instructive discussions on the subject of this common surgical lesion and it would seem that the ground had been well covered. Nevertheless, the fact remains that a very large number of these cases apparently pass unrecognized, or at least the possibilities of the disability, and its correction, do not seem to have received the attention from the profession at large which the importance of the subject warrants.

Of all of the derangements of the upper extremity there is no one which can provide more annoyance, and often actual disablement, than a painful shoulder combined with limitation of abduction and rotation movements. Innumerable daily habitual acts are curtailed by the pain and stiffness at the shoulder, and to make matters worse, the unfortunate victim is almost more uncomfortable at night than when he is up and about. The object of this brief paper is to call attention again to this common trouble, and to confirm out of personal experience the conception of the lesion, its cause and treatment, as expressed by Brickner in his paper in the March number of the *Journal of the Medical Sciences.*

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 28, 1915.

That type of stiff and painful shoulder due to bursal injury or disease, is easily understood if we will refer to the anatomy of the region. (Fig. 1.) An excellent description of the condition is found in Codman's original articles in the *Boston Medical and Surgical Journals,* 1906, 1908 and 1911, and quoted in Vol. VI of *Keen's Surgery* by Binnie.

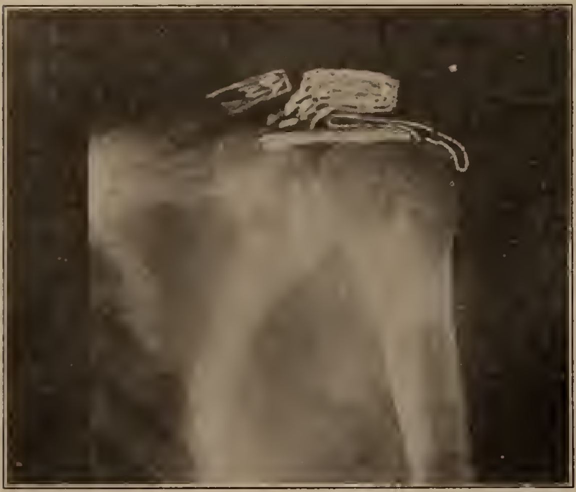

Fig. 1.—Showing relations of bones, tendon and bursa.

We find the bursal walls extending over a considerable area of which the major portion is fixed to the humeral head and the under surface of the acromion. The lesser portion, the outer wall of the bursa, is in intimate relation with the deltoid. This lesser portion is the only flexible part of the bursal wall and must fold up and move with the motions of the humerus. Any movement of the humeral head in the direction of abduction must carry the greater tuberosity toward or under the acromion, the free part of the upper bursal wall infolding as the excursion of the arm increases. The floor of the bursa is closely attached to the humeral head in the region of the tuberosity, in front of, and behind it. The spinatus tendons, attached to the upper surface of the tuberosity, lie directly under the bursal floor, and their attachments, especially that of the supra-spinatus are subject to injury from the same violence which might produce trouble in the bursa. From this description it is easily seen that abduction would be limited if from any cause the free portion of the outer bursal wall became adherent to the floor. Also the same result would obtain if from any cause the bulk of tissue in the floor were increased at a point over the tuberosity or the insertion of the supra-spinatus tendon. As a matter of fact this is exactly what does occur, and explains why we can have an apparently free moving shoulder until abduction is attempted, when pain and limitation of motion are at once evident. Such a combination of signs is almost sure evidence that the condition is not due to trouble in the articulation itself, but to a derangement of the bursa.

As to the cause of this lesion, Brickner is undoubtedly right in assuming trauma as the etiological factor in the great majority of cases. Tuberculosis has been recorded in rare cases, and acute infections are occasionally noted. I have myself drained one infected bursa, where there was an abscess of the hand in the same extremity, the bursa having become part of a large abscess located over the outer portion of the shoulder joint. It is not difficult to explain the traumatic origin if one has once looked into the bursal space and noted how with abduction movements, the greater tuberosity becomes as one jaw of a vise, the acromion the other, and the infolding bursal wall is forced between the two. With the arm in extreme abduction a very slight violence, such as hanging from a car strap or swinging rings, will be sufficient to bruise the bursal surfaces. Or if the violence be greater as when a mechanic's arm is caught on a revolving shaft, the pressure and strain may be great enough to tear and injure the supra-spinatus tendon at its insertion, as well as the bursal walls. The same possibilities lie in a fracture high up in the humerus, both with and without fracture of the tuberosity. The same violence which produces the fracture will be sufficient to wedge the humeral head into the acromion and so to a varying degree, produce the bursal injury. (Fig. 2) In the last instance it is so frequently noted that following a well treated fracture with an apparently free joint, there will result limitation of abduction and often pain, long after muscle shortening and atrophy can be counted as a

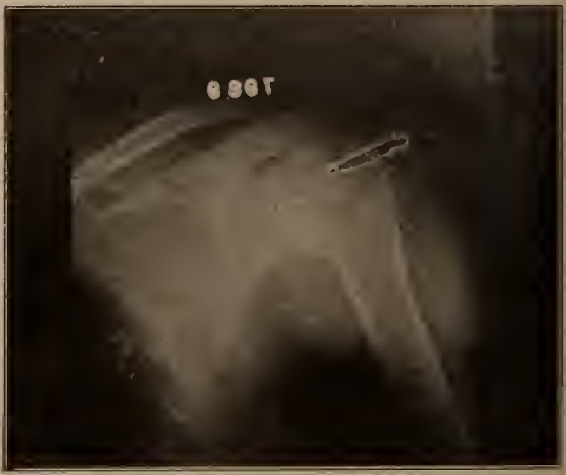

Fig. 2.—Fracture through tuberosity.

cause of disability. In fact it has been the writer's observation that many of the cases of adults with a history of fracture at the shoulder have a permanent disability not due to bone deformity, which would seem to be best explained by a bursal lesion.

The type of pathology following these injuries will vary largely in direct proportion to the original violence, and especially with reference to the exact point of injury. If a simple contusion of synovial-surfaces, with outpouring of serum and repair, a temporarily tender bursa recovering with rest, or rest and aspiration may be the result. If adhesions form during the process of repair, then a chronic condition will follow. If the supra-spinatus tendon has been injured or torn at its insertion, then will result a collection of serum under the bursal floor, or there may be an area of villous like granulation tissue, as was noted in one of the writer's cases, or we may have as an end result a deposit of lime salts in the field of injury producing a so-called sub-acromial concretion.

The matter of diagnosis in these cases is not quite as easy as one might be led to believe considering the localized nature of the lesion. In acute cases history of injury with local pain at least, if not actual tenderness, coupled with limitation of abduction will suggest the bursa. If also we have X-ray findings excluding bone lesions, and find that pressure at the elbow in the long axis of the arm fails to elicit signs of tenderness at the shoulder, the evidence is in favor of bursa rather than articulation. In such cases if there is no serious injury of the tendon insertions a period of absolute rest of the shoulder, with gradually increasing abduction, has usually resulted in recovery. When the cases give a chronic history of trauma, it is only by means of a painstaking examination into the history, onset, and present condition, that one may arrive at a proper conclusion. The writer is in complete accord with Brickner in his assertions that thickened bursæ, without lime deposits do not show in radiographs; also that there is no consistently uniform point or points of tenderness to be found in all cases. There has been in my experience an almost uniform appearance of limitation of abduction in all cases. In some individuals what appears to be nearly normal abduction, will be found upon close examination to be a true limitation at the joint, with an increased excursion of the scapula as compared with the well side. The older cases also are apt to be quite comfortable until the act of abduction reaches the point where the deltoid is pulling strongly, and then pain around the shoulder or down the arm is felt. Good stereograms, and I believe that stereo-grams only should be relied upon in the examination of these cases, will exclude bone disease, deformity and anomalies, and will demonstrate the presence of lime deposits under the bursal floor. However, the negative X-ray findings should not defer operative procedure in the presence of well worked out clinical signs. In one of the writer's cases a mass of repair tissue ½ cm. in diameter, and almost as thick, was removed from the region of the insertion of supra-spinatus tendon, although a good stereo-gram showed an apparently normal shoulder field. While acute cases have done well under rest and conservative treatment, the writer's experience with conservative methods in the older cases has not been at all satisfactory.

In two or three instances where adhesion has been suspected, a forcible abduction under gas has resulted in relief of pain, and some slight increase of motion. In two of the cases abducted under gas and put at rest, this relief was of short duration, and upon operation later, both were found to have had injuries of the tendon which were repaired, and recoveries resulted. Of course where lime deposits are found, operative removal is indicated. It would seem that in any case in which conservative methods had failed and the disability persisted, whether or not concretions can be demonstrated, that the best surgery would be the exploration of the bursa and the bone under its floor in the region of the attachment of the tendons. Again quoting from Brickner, there is apparently as much chance of finding pathological conditions beneath the bursal floor, as upon the synovial surface. He takes issue with previous writers in the matter of location of the lime deposits, and my own cases have confirmed his findings, namely that the lime deposits are under the bursal floor.

The operation does not present any technical difficulties. A fairly long incision, two and one-half to three inches, will greatly facilitate the procedure. The deltoid is split with the fibers, and at this point great care should be exercised or the operator will miss the outer flexible bursal wall at the first incision. This will be especially true if there is a large mass of lime or fluid under the bursa causing a tumor like projection into the sac. With this exposure the bursal sac is easily explored, and the arm can be rotated and abducted to bring its entire extent into view. Any adhesions or rough surfaces may be removed. Next a small incision parallel to the outer incision is made over the end of the supra-spinatus tendon. If lime is present the incision enlarged until the whole mass can be removed. The lime may be found around the tendon or in its fibers, and a careful search should be made for its entire extent. Any tear of the tendon should be repaired, and excess scar, or fibrous tissue removed. The wound in the bursal floor is then closed, the outer wall closed without drain and a few stitches in the muscle, and skin suture, complete the procedure.

Some writers have held that abduction maintained as post-operative treatment is not necessary. It has been my own personal experience that the abduction posture while very tiresome to the patient, is well worth while in the end. Cases treated without abduction as a post-operative feature, required quite the longest time of all the cases noted to regain a good functionating shoulder.

A brief citation of a few illustrative cases will perhaps be of interest.

The Cases.

Case I.—A school teacher age forty, gives a history of recurrent pain and stiffness in the left shoulder extending over a period of two years. The history of injury is vague, and referred to two possible slight trauma some few weeks previous to the first attack. The previous medical history of the case bore no apparent relation to the trouble in the shoulder. The limitation of abduction and internal rotation was marked and noted by the patient as increasing. Pain was not constant, coming on at intervals of several days, and increasing in frequency. There was no point of tenderness around the joint when the patient was examined. A stereo-gram showed a normal joint except for a deposit of lime apparently in that part of the wall of the bursa on the under surface of the acromion. (Fig. 3.) This would account for the failure to elicit signs of tenderness upon pressure. The patient refused operation.

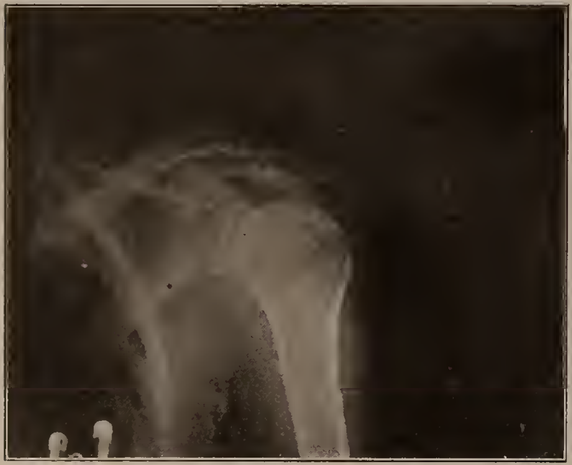

Fig. 3.—Case 1. Note lime deposit under acromion.

Case II.—A healthy young man, age twenty-four, hurt his right shoulder while wrestling. Disability followed, with acute pain in the shoulder, which gradually subsided. He carried his arm in a sling for a time and apparently recovered. After about six weeks he again noted pain and stiffness in the shoulder and three months after injury consulted the writer. There was pain and limitation of motion as in the other cases, and a distinct point of tenderness over the tuberosity. The stereo-gram showed an apparently normal shoulder. Exploration of the bursa showed smooth walls, but a small mass at the insertion of the tendon incised, released about one c.c. of thick amber fluid, and a few tags of frayed tissue were removed. No rent of the tendon could be demonstrated. The fluid was sterile. This case was dressed in abduction, the arm lowered in ten days, and motion and massage begun. A complete functional recovery resulted, with almost complete abduction at the end of three months of exercise. No return of pain.

Case III.—An otherwise healthy man 71 years old, while jumping from an overturning buggy wrenched his left shoulder. He noted pain and soreness in this region which gradually increased. He was ministered to by an osteopath shortly after the injury. These attentions markedly increased his discomfort and he abandoned all treatment, carrying his arm in a sling on his own initiative. At the end of six months he presented a marked loss of abduction, a rather constant, dull pain in the shoulder and arm, with occasional attacks of sharp pain upon motion. There was no external enlargement in region of the bursa, and no point of tenderness when seen. The stereo-gram showed a small flake like concretion just above the tuberosity. (Fig. 4.) This case has not yet returned for operation.

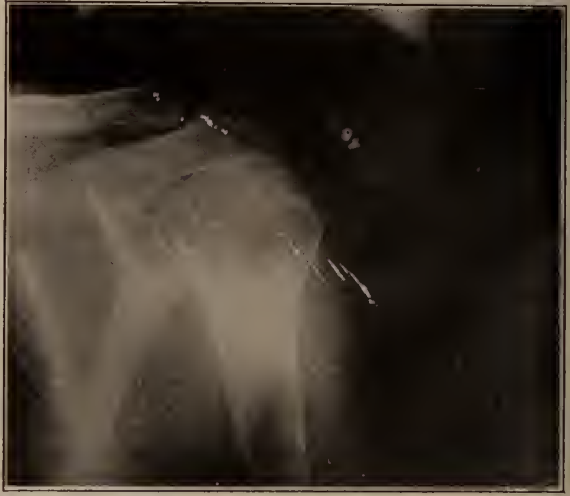

Fig. 4.—Case 3. Small concretion at outer edge of tuberosity.

Case IV.—A machinist, age 53, caught his hand under a moving belt and sustained a severe abduction injury of the left shoulder. He was treated for a fracture of the humerus without X-ray diagnosis. His arm was carried in a bandage for four weeks. Six weeks after the injury he was seen by the writer. His medical history was unimportant. The motion at the shoulder was very markedly limited, and the whole front of the joint was tender. There was no swelling. Stereo-grams showed normal shoulder. (Fig. 5.) He was classified as an acute case and treated by the conservative method. At the end of six weeks the arm was comfortable when quiet, but motion was limited and painful. The bursa was explored and no adhesions found but a rough area over the insertion of the supra-spinatus tendon. Incision of floor of bursa in this region revealed a papilloma like mass one-half cm. in diameter and almost as thick. The end of the tendon was not clearly demonstrated. This mass was removed, and with it a portion of the bursal floor. Wound closed, abduction posture for six days. Massage and exercise after two weeks. A good functionating shoulder free from pain, with about seventy-five per cent of abduction at the end of six weeks.

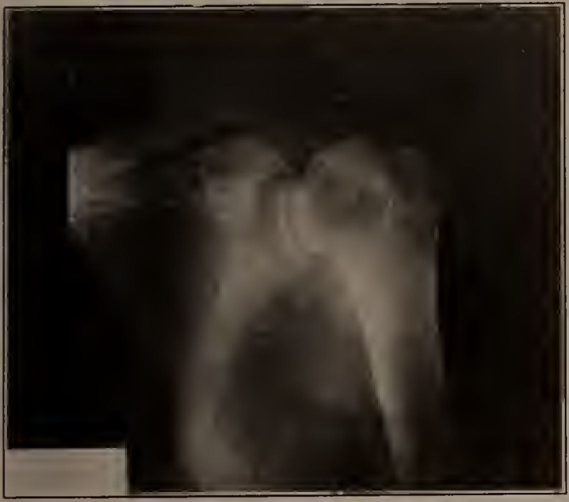

Fig. 5.—Case 4. Apparently normal shoulder.

Case V.—An otherwise healthy man of forty presented a history of recurrent pain and stiffness in his left shoulder, extending over a period of seven years. A similar condition, of much less degree, had existed in the right shoulder for about two years. This man had been variously treated for rheumatism, neuritis, etc., and a recent careful study of metabolism had failed to reveal any cause for his trouble. In his younger days he had amused himself with gymnastic work. There was no point of tenderness, or palpable mass. The right shoulder was free in abduction at time of examination. It had been limited at times when lame. Stereo-grams revealed lime deposits in the region of the tuberosities of both humeri. The right small and spherical (Fig. 6), the left larger in mass than the tuberosity itself. (Fig. 7.) The left bursa was opened and found free from fluid or adhesions. Directly under the incision the floor was elevated by a mass the size of an ordinary bean. Incision revealed the lime deposits both in and around the tendon. No tear in the tendon. This case was not treated by abduction and recovery was slower than in other cases. Complete, painless, recovery of adduction resulted in five months. Examination of the material removed showed the presence of lime. It is of interest to note that several months after his operation his right shoulder was severely abducted by accident. An immediate attack of severe pain followed but subsided rather rapidly under rest. A subsequent stereo-gram seemed to show a rearrangement of the lime deposit in the right shoulder. Ely's interesting case, reported in the *American Journal of Orthopedic Surgery* for January, is a marked exception. Not only was the bursa tender to a degree, but there was also swelling and the X-ray revealed large deposits of lime in the bursal wall. An unusual appearance of acute signs in a chronic case. His case was closed without drainage and made an uneventful recovery.

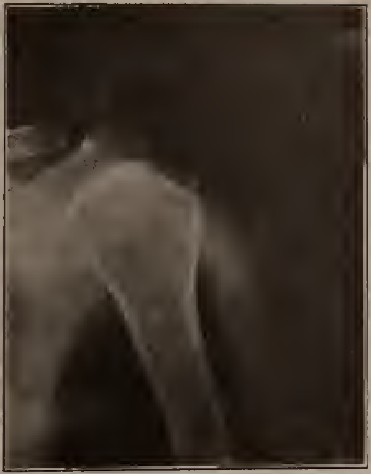

Fig. 6.—Case 5. Right shoulder. Small concretion.

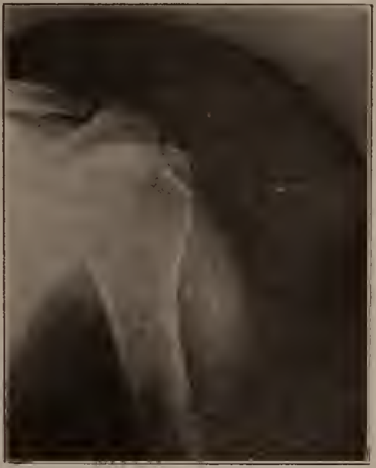

Fig. 7.—Case 5. Left shoulder. Large concretion, later removed.

In Conclusion: It would seem that many of the cases of stiff and painful shoulder present possibilities of relief by the means just under consideration. I would urge that all such shoulders be carefully studied with the idea of operative correction of a chronic lesion in mind. I think also that we might well extend this consideration to those cases of stiff and painful shoulder following fracture, where we have in the past been accustomed to look upon slight changes in the position or contour of the humeral head as a sufficient cause of the disability.

Discussion.

Dr. Roland Meisenbach, Buffalo, N. Y.: I have been especially interested in this topic ever since Codman published his excellent monograph on this subject in 1908. In fact, I had the great pleasure of seeing some of Codman's original cases. These cases are often seen as cases of periarthritis of the shoulder, but when they are carefully studied and analyzed, different conditions may become apparent; that is, we may have a subdeltoid bursitis, with or without concretions, or we may have an actual rupture in the traumatic type, of the supra-spinatus muscle. These cases of concretions may be complicated by hypertrophic arthritis, and on this point I cannot agree with the essayist that the bursa is invisible on the radiogram. I know that even in the earlier stages, before the actual concretions have manifested themselves, the process can be seen as a light shadow on the negative, providing, of course, that the proper technique in radiographing the patient is employed; namely, attempting to obtain a soft negative with the soft parts showing. With this in view, it has been my custom the last eight or nine years that in dealing with a case of this kind I make the radiogram in two different positions, one with the arm down at the patient's side and the other with the arm extended to a level with the shoulder. If the bursa is thickened, it will not readily slip under the cromial process of the shoulder, or may cause pain. Considering the treatment of these patients, we formerly put them up with their arms over their heads, but in the last few years I have abandoned this method and given the patient graduated shoulder-lifting exercises; that is, have the patient take hold of the edge of a door, and each day bring the arm higher until the top of the door is reached. I agree with the essayist that sometimes it requires five or six months to obtain any kind of results, unless the case is a traumatic one, when an operation will assist in the shortening of the convalescence.

I wish again to emphasize, as I have emphasized in an article written in 1914, that chronic shoulder joints, which are so frequently met with, should be carefully studied and an analysis of the condition made, which in many instances will throw more light upon the causative factor in producing the stiffness. I believe they should not all be called simply periarthritis of the shoulder and manipulated under an anaesthetic.

Dr. Frederick H. Albee, New York City: I have been very much interested in Dr. Plummer's paper, but have only a word to say in the discussion. There is one point about the etiology of these cases that is interesting. In the change to modern methods of traveling, carried about as we are by public service corporations, the doctor has illustrated very clearly how these cases may be brought about in straphangers on our various street cars and subways. In New York City most of us are carried about in the subway and in other places in the position he has described; the trains are moving rapidly in the subway and in going around a curve the straphanger gets a severe jolt while the arm is in extreme abduction and I have no doubt that some of these cases—I do not know how many—are caused in this way, and possibly that may account for the increase in the number of cases of this affection which we see.

RESULTS OF THE SCHICK TEST AT THE ROCHESTER ORPHAN ASYLUM.*

By STEARNS S. BULLEN, A.B., M.D.,
ROCHESTER, N. Y.

THIS work was done at the Rochester Orphan Asylum, which is an institution built on the cottage plan, each cottage housing from eighteen to twenty-four children, about one hundred and forty in all. It is situated at the edge of the city where the children have free range over a large wooded hill at the back, in addition to their own spacious grounds. They spend nearly all their waking hours out of doors, except when they are confined in school. Under such conditions they are normal, healthy children of about average physical development.

In May, 1914, one hundred and thirty-two children were tested. One hundred of the same children were again tested in April, 1915. I need not go into the technic of the operation, except to say that, on both occasions, the toxin was diluted with normal saline solution so that the required amount (1/50 minimum lethal dose for the guinea pig) was contained in .2 c.c.

I wish to emphasize one point which has received mere mention in all the articles which I have seen on this subject, namely the painlessness of the procedure. The children examined in this series ranged in age from six months to seventeen years. My procedure with the smaller children was to have the house-mother hold such a child on her lap and engage his attention with something ouside the room. He was not allowed to see the syringe, nor to watch the preparations for the injection. In but one or two cases was there even any wincing when the needle was introduced into the skin. Most of the children were genuinely surprised to see the whitish wheals on the skin when they were allowed to look at their arms. A number of the older children remarked that "it felt like a big mosquito biting." This may be a small matter from a scientific view-

TABLE 1.
TESTS MADE IN MAY, 1914.

Age	Number	Number Strongly Positive	Number Weakly Positive	Number Negative	Percentage Immune
Under 2 years....	4	2	..	2	50
2 to 5 years......	14	2	..	12	85.6
5 to 10 years.....	51	14	6	31	60.8
10 to 17 years...	63	29	5	29	46
Total	132	47	11	74	..
Total per cent...	...	.. 44		56	..

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Buffalo, April 28, 1915.

point, but it is certainly one of considerable interest to the patient.

To summarize this table, 56 per cent of this group of children had at least 1/30 unit of natural diphtheria antitoxin per c.c. of serum, as shown by Schick[1] and numerous workers[2] in this country. Because of this, they would probably have been immune to diphtheria even had they been exposed. On the other hand, the remaining 44 per cent had less than this amount or none at all and would, therefore, have been susceptible.

Shortly after these tests were made, a small supply of toxin-antitoxin mixture was received from the New York Health Department.[3] It was decided to attempt to immunize, actively, the susceptible children. Because the supply was limited, only those children who showed strong positive reactions were treated.

Forty-one such children were given ¼ c.c. of the toxin-antitoxin mixture, subcutaneously, on two occasions, with a four day interval. Of this number, thirty-five were still in the institution in April, 1915, eleven months later, and were again tested. All except eight of them (77%) still gave strongly positive reactions, showing that they had developed very little, if any antitoxin as a result of the treatment.

TABLE 2.

TESTS MADE IN APRIL, 1915.

Age	Number Tested	Number Strongly Positive	Number Weakly Positive	Number Negative	Percentage Immune
Under 2 years....	3	2	..	1	33.3
2 to 5 years......	9	4	1	4	44.4
5 to 10 years.....	35	11	5	19	57
10 to 17 years....	53	18	4	31	58.5
Total	100	35	10	55	..
Total per cent....	..	.. 45		55	..

This group of one hundred children comprised those who were first tested who still remained in the institution. Forty-five showed more or less strongly marked reactions, while fifty-five gave no reaction. Eighteen who showed positive reactions eleven months before, now gave no reactions. Included in this number are the eight cases already mentioned as having possibly developed immunity as a result of the treatment with the toxin-antitoxin mixture. On the other hand, fifteen children who gave negative results with the first test, now showed positive reactions.

In November, 1914, about six months after the first test, a girl of nine years developed diphtheria. This was confirmed by throat cultures. When examined the preceding spring, she gave a negative reaction to the Schick test. After her admission to the hospital, she was given a curative dose of antitoxin and then another Schick test was done. Naturally the toxin of this test was neutralized by the antitoxin and again a negative result was obtained. In April, 1915, five months after the attack of diphtheria, she also reacted negatively to the Schick test.

At the same time this girl was ill, three other children in the institution gave positive throat cultures, although they had no clinical manifestations of diphtheria, aside from slight pharyngitis. These three cases had all given negative results with the Schick test the preceding May. Because of this, and because their symptoms did not seem to demand immediate treatment, they were again tested, after their admission to the hospital, before they were given any antitoxin and were found to give no reactions Therefore, they were considered to be merely "carriers" and no antitoxin was administered. The belief was justified, because their mild throat symptoms cleared up very promptly, although it was some little time before negative throat cultures were obtained.

I cite these cases, not because the series is a sufficiently large one from which to draw conclusions, but to illustrate two points. First, positive or negative results with this test do not give us data which remain the same for an indefinite period of time, one or two months, at the outside, being the limit. And, secondly, by combining the Schick test and throat cultures, to enable us to single out the "carriers," many individuals, even though they harbor the germs in their noses or throats, may be saved the discomfort, slight danger and expense of injections of antitoxin in horse serum.

From none of these two hundred and thirty-two injections did any bad results occur.

Summary.—One hundred and thirty-two normal, healthy children were tested in May, 1914, and the test was repeated on one hundred of them in April, 1915, eleven months later. On both occasions, practically 55 per cent were found to have sufficient natural antitoxin in their tissues to neutralize the toxin injected, that is, at least 1/30 unit per c.c. of serum, sufficient to protect against diphtheria.

Eighteen children who gave positive reactions in May, 1914, showed no reactions in April, 1915.

Fifteen children who gave no reactions when first tested, showed more or less strongly marked reactions at the second test.

Conclusions.—It has been proven, experimentally, that about 50 per cent of children, of the ages of these, have, naturally, an immunity to diphtheria. Therefore, by the aid of the Schick test, which may, and should be, repeated at least once a month, in the presence of an epidemic, and by singling out the "carriers" by throat cultures, epidemics of diphtheria in this, and similar institutions may be controlled at about half the expense for antitoxin, and with much less discomfort to the children.

REFERENCES.

1. Schick. *Munchen. Med. Wchnschr.*, 1913, Vol. LX, p. 2608.

2. Park, Zingher and Serota. *Arch. of Ped.*, Vol. 31, No. 7.

2. Kolmer and Moshage. *Amer. Jour. of Dis. of Child.*, Vol. 9, No. 3.

3. Park, Zingher and Serota. *J. A. M. A.*, Vol. LXIII, No. 10, p. 859.

Legislative Notes

BILLS INTRODUCED INTO THE LEGISLATURE, February 25, to March 25, 1916.

IN SENATE.

Authorizing the changing of the Physicians' Hospital of Plattsburg from a stock corporation to a membership corporation and providing for the regulation of the same. (Same as A. 853.) By Mr. Emerson. To Judiciary Committee. Printed No. 682. Int. 646.

Amending sections 1570 and 1571, Greater New York Charter, by providing that in November, 1917, there shall be elected one coroner for each county in the city, for four year terms, and thereafter there is to be one coroner for each county. There are also certain other changes relative to coroners. By Mr. Gilchrist. To Cities Committee. Printed No. 927. Int. 846.

Adding new article 12-a to Public Health Law, providing for the regulation of the practice of chiropractic by a State board of chiropractic examiners of five members, who must not be licensed medical doctors or osteopaths, to be appointed by the State Regents. The license fee is $25. (Same as A. 1322.) By Mr. Mullan. To Judiciary Committee. Printed No. 955. Int. 870.

Adding a new section 1503-b, to New York City Consolidation Act, authorizing the New York county district attorney to appoint, and at pleasure remove three medical assistants, residents of the county, to be known as examiners in lunacy. They must be duly licensed physicians and surgeons of not less than ten years' practice in the county and must have served as commissioners in lunacy proceedings and have testified before a court of record in such cases. They are to examine and report the condition of persons confined or waiting trial or other disposition on a criminal charge. The district attorney is to fix their salary, By Mr. Walters. To Cities Committee. Printed No. 989. Int. 894.

Amending sections 164, 170 and 174, Public Health Law, by providing for annual registration of physicians with the Board of Regents that licenses may be revoked for failure to register, and that the Regents may designate a competent person to hear testimony as to alleged violations of the article, and making certain other changes. By Mr. Wicks. To Public Health Committee. Printed No. 1027. Int. 917.

IN ASSEMBLY.

Adding new section 88 to the Public Health Law, providing that hereafter no institution for the care of mental or other diseases or for correctional or charitable purposes shall be located or constructed by the State or any municipal or other corporation or person upon any territory within the Croton watershed. (Same as S. 59.) By Mr. Evans. To Public Health Committee. Printed No. 1017. Int. 918.

Amending section 385, Public Health Law, by providing that after January 1, 1917, no person other than a physician shall practice midwifery unless licensed by the State Commissioner of Health and registered with a local registrar as provided in the section. By Mr. N. J. Miller. To Public Health Committee. Printed No. 1184. Int. 1057.

Amending sections 160 and 174, Public Health Law, by providing that "unprofessional conduct" shall include wilful betraying of a professional secret, habitual drunkenness or addiction to drugs, and advertising to practice medicine, and relative to penalties for violation. By Mr. Hess. To Public Health Committee. Printed No. 1400. Int. 1204.

Adding new section 142 to Town Law, authorizing the town board of a town containing a village or hamlet where there is no practicing physician resident within eight miles, to create the office of town physician and to appoint such a physician on condition that he will reside in the village or hamlet. The compensation is to be a town charge. (Same as S. 972.) By Mr. Kasson. To Internal Affairs Committee. Printed No. 1520. Int. 1297.

Adding new article 12-a to Public Health Law, providing for the regulation of the practice of chiropractic by a State board of chiropractic examiners of five members, who must not be licensed medical doctors or osteopaths, to be appointed by the State Regents. The license fee is $25. (Same as S. 870.) By Mr. Powers. To Judiciary Committee. Printed No. 1545. Int. 1322.

Notes from the State Department of Health

MILK-BORNE OUTBREAKS OF INFECTIOUS DISEASE IN NEW YORK STATE.

The following table shows the location of milk-borne outbreaks of infectious disease in New York State from May 1, 1914, to January 1, 1916:

Place.	*Time.*	*Disease.*	*No. of Cases.*	*No. of Deaths.*
Wellsville	June, 1914	Typhoid Fever	13	2
Salisbury Mills	Nov., 1914	" "	19	3
Amsterdam	June, 1915	" "	8	2
Auburn	Aug., 1915	" "	31	3
Bullville	Sept., 1915	" "	8	2
Elmira and Southport	Nov., 1915	" "	20	2
Greenwich	Dec., 1915	" "	12	..
Utica	Feb., 1915	Scarlet Fever	30	..
Poughkeepsie and Wappingers Falls	Apr., 1915	" "	145	19
West Danby	Aug., 1915	" "	5	..
Suffern	May, 1915	Diphtheria	41	..
Lake Mohonk	Aug., 1914	Septic Sore Throat	40	..
East Hampton	Aug., 1914	" " "	46	..
Rockville Center	May, 1914	" " "	232	3
West Winfield	May, 1915	" " "	125	1

Altogether there were fifteen outbreaks.

The Sanitary Supervisors have been active in tracing the sources of these outbreaks and have filed reports with the department. The above table is compiled from their reports. The summary of the above table would indicate that there were the following number of cases and deaths from milk-borne outbreaks:

Typhoid Fever	111 cases	14 deaths
Diphtheria	41 "	0 "
Scarlet Fever	180 "	19 "
Septic Sore Throat	443 "	4 "

The total number of cases is 775 and 37 deaths.

F. M. MEADER,
Director, Division of Communicable Diseases.

Correspondence

WHAT'S THE MATTER WITH THE STATE SOCIETY?

394 Clinton Avenue, Brooklyn.

Dr. John Cowell MacEvitt,

Editor, New York State Journal of Medicine.

We have read with much interest an article in your February issue on "Sectionalism," by Dr. Floyd M. Crandall, of New York. With some of his conclusions we are in hearty accord, with others we presume to differ even at the risk of being relegated to that group of malefactors which the doctor has specially prepared for "agitators and makers of trouble"—"the apostle of unrest who fan the smoldering fires of suspicion and discontent"—and these the doctor goes on to stigmatize "are the most dangerous of undesirable citizens." We concede that Dr. Crandall is well qualified to discuss "sectionalism," but since he is so punctilious in insisting upon his qualifications of birth, education, and environment, why not add his most important qualification—his associations. Dr. Crandall has been one of the mouthpieces of a coterie that have agglutinated about the permanent officers as a nucleus. This coterie are members of the same County Society, their vision is limited by the county from which they hail; by their arrogance and lust for power they have done more to stimulate sectionalism and discontent than any other influence in the State Society.

Leaders we must have, but they must be big and broad minded and sympathetic enough to be considerate of the various interests of the members throughout the length and breadth of the state. It isn't good business to pat the members on the back throughout the year and then at convention time forget that they have any worth save a ballot to be counted. We are tired of seeing the old-fashioned courtesies ignored and our conventions rehearsed and staged by a stock company for their annual return engagement. It is little wonder that Dr. Crandall deplores the sullenness which he has helped to foster.

The State Society needs leaders, not drivers; leaders who will make a sincere endeavor to interpret the local needs and aspirations of our profession throughout the state, and promulgate those broad and comprehensive principles of fraternity in which sectional differences are submerged in the greater good of the larger number.

We have no such conception of the State Medical Society as Dr. Crandall promulgates. He compares it to a club, each member paying the same dues, but getting from the club different benefits. The analogy is far-fetched. A club is a social luxury providing a place where a man may spend his leisure as his fancy dictates—his membership affirms the fact that he is able and willing to support the various activities in order that he may have his favorite amusement.

The function of the State Society is not general, it is specific; it is to do for its individual units what they cannot do for themselves; it is primarily a protective function, its aim is to better safeguard the interests of its individual members and thereby sustain the dignity of the medical profession in the various communities throughout the state.

The State Society is an investment and the investors have a right to expect certain returns, and some there are who cannot comprehend why they are compelled to subsidize a certain minority to the extent of one-third of the Society's income in order that other activities may survive.

Those who are responsible for the management of the State Society either regard themselves superior to criticism or exempt from it; for he who dares to criticise is regarded as an "agitator and maker of trouble" upon whom should be inflicted the opprobrium of the "steam-roller." There is evidently no toleration of a difference of opinion. He who differs from the "coterie" is an enemy of the Society.

In all sound business organizations where efficiency is the master aim, criticism is welcomed, suggestions are invited, better methods are sought for, and personal considerations are subservient to the success of the enterprise.

But, for example, if one suggest that the administration and development of the State Society's publishing enterprises could be better served than by a board of unpaid and busy doctors, he is guilty of high treason; and this notwithstanding the incontrovertible evidence that the Journal is published at an annual loss of over five thousand dollars; that in cheapening the appearance of the Journal, it becomes less attractive to advertisers; that five hundred dollars "saved" in cost of manufacture may mean the loss of thousands in advertising. Such "economies" do not appeal to the experienced publisher, yet they assume the dignity of virtues to the Publication Committee. And to all this the answer is ever the same old adage, "we can be just as moral as we are willing to pay for," and with this cry of despair our Journal languishes in a physical anemia which is pitiable to behold. And yet Dr. Crandall regards such criticism as "bickering over non-essentials."

As we have already intimated, the strategic point in the State Society's further progress lies in a wise and equitable appropriation of its finances. The future progress of the Society demands an increasing budget out of all proportion to the expected increase in membership. The needs of the Society require a readjustment of its appropriations proportioned according to the value of the asset for which the money is being spent. The Society's activities should be advanced in certain directions and curtailed in others, and the measure of their value should be their efficiency, which is nothing more than their net value to the membership as a whole.

These suggestions made two years ago still force themselves upon our consideration; for what the Society then sought to evade it has since been compelled to recognize by the inevitable economic stress which has forced a sullen readjustment of our appropriations.

What a wise forethought should have anticipated, the relentless law of necessity has wrung from unwilling hands. And yet Dr. Crandall thinks this is "bickering over non-essentials."

Dr. Crandall belongs to a certain group who regard the Medical Directory as a sort of fetish, and he who suggests its curtailment or a more economical way of attaining the same results, is guilty of blasphemy. Dr. Crandall needs to realize that the problem of the State Society is a problem of arithmetic, and this problem will find its solution either in wise and timely measures which guarantee our future solvency, or in the economic stress which already presses hard and compels unwilling retrenchment.

We are convinced that Dr. Crandall is somewhat overwrought by the clouds which he thinks he sees on the sociological horizon. Fears of social chaos and disaster should give way to faith in stout hearts and level heads; faith in the permanency of character and the triumph of worth.

Cheer up, Dr. Crandall! The real danger to our State Society and our national life is the smug complacency of the pacifist to whom peace is more important than justice.

William Francis Campbell.

Medical Society of the State of New York

17 West 43d Street, New York.
March 15, 1916.

The regular annual meeting of the Medical Society of the State of New York will be held on May 16, 1916, at 11 A. M., at the Casino Building, Saratoga Springs, N. Y.

W. Stanton Gleason, M.D., *President.*
Floyd M. Crandall, M.D., *Secretary.*

17 West 43d Street, New York,
March 15, 1916.

The regular annual meeting of the House of Delegates of the Medical Society of the State of New York will be held on May 15, 1916, at 8 P. M., at the Casino Building, Saratoga Springs, N. Y.

W. Stanton Gleason, M.D., *President.*
Floyd M. Crandall, M.D., *Secretary.*

110th ANNUAL MEETING.

Tuesday, May 16th, 11 A. M.

Casino Auditorium.

Calling the Society to order, by W. Stanton Gleason, M.D., President.

Invocation by Rev. H. P. LeF. Grabau (by invitation).

Address of Welcome, by Albert Warren Ferris, M.D., Chairman Committee on Arrangements.

Reading of minutes of the last meeting, by Floyd M. Crandall, M.D., Secretary.

Address of welcome, Hon. Edgar T. Brackett, Saratoga Springs (by invitation).

Oration on Medicine: "Medical Preparedness with Reference to the Occurrence of Infectious Diseases Among Armies," by Richard P. Strong, M.D., Professor of Tropical Medicine, Harvard University Medical College, Boston, Mass. (by invitation).

Tuesday, May 16th, 8.30 P. M.

Casino Auditorium.

General Meeting.

President W. Stanton Gleason, M.D., presiding.

"The Geology and Hydrostatics of Saratoga Springs" (illustrated with lantern slides), Albert Warren Ferris, M.D., Saratoga Springs.

"The Therapeutic Importance of a Scientifically Conducted Health Resort," Walter B. James, M.D., New York.

"The Relation of the State to the Saratoga Springs Reservation," Hon. Charles S. Whitman, Governor of the State of New York (by invitation).

PRELIMINARY.

SCIENTIFIC PROGRAM.

Arranged by the Committee on Scientific Work.

Thomas J. Harris, M.D., Chairman,
104 East 40th Street, N. Y. City.
James F. McKernon, M.D., N. Y. City.
Percy Fridenberg, M.D., N. Y. City.
John L. Heffron, M.D., Syracuse.
George G. Ward, Jr., M.D., N. Y. City.
DeWitt H. Sherman, M.D., Buffalo.
Joshua M. Van Cott, M.D., Brooklyn.
Harry R. Trick, M.D., Buffalo.

By-Laws, Chapter XI.

Section 1. No address or paper before the Society, except those of the President and orators, shall occupy more than twenty minutes in its delivery, and no member shall speak upon any question before the house for longer than five minutes nor more than once on any subject, except by consent.

Sec. 2. All papers read before the Society by its members shall become the property of the Society. Permission may be given, however, by the House of Delegates or the Committee on Publication to publish such paper in advance of its appearance in the New York State Journal of Medicine.

Sec. 3. Any distinguished physician of a foreign country or a physician not resident of this state, who is a member of his own state association, may become a guest during any annual session upon the invitation of the President or officers of the Society, and may be accorded the privilege of participating in all the scientific work of the session.

The order of reading papers will be in accordance with the printed program.

SECTION ON MEDICINE.

Chairman, John L. Heffron, M.D., Syracuse.
Secretary, John M. Swan, M.D., Rochester.
Place of Meeting, Casino Auditorium.

Tuesday, May 16th, 2 P. M.

Joint Meeting with Sections on Public Health and Pediatrics.

Medical Examination of School Children.

"The Vision of the School Child," F. Park Lewis, M.D., Buffalo. (Lantern slides.)

"Some Practical Experiences in Medical Inspection," William A. Howe, M.D., Albany.

"The Neuropathic Child," Edward B. Angell, M.D., Rochester.

"The Open Air School Child as a Type," Joseph C. Palmer, M.D., Syracuse.

"The Health of Rural Children," Thomas D. Wood, M.D., New York.

"Scope of Practicable Examination in Routine School Medical Inspection," Clinton P. McCord, M.D., Albany (by invitation).

"The Effect of Malformation and Infection of the Oral Cavity of the Child, Upon Its Future Health," Stephen Palmer, D.D.S., Poughkeepsie (by invitation).

Wednesday, May 17th, 9.30 A. M.

Physiological Therapeutics.

"The Value and Limitations of Physiological Therapeutics," John M. Swan, M.D., Rochester. (Lantern slides.)

"The Nauheim Method of Bath," Simon Baruch, M.D., New York (by invitation).

"Clinical Report on the Administration of Mercurialized Serum in the Treatment of Paresis and Tabes Dorsalis," Richard H. Hutchings, M.D., Ogdensburg.

"A Study of the Cerebro-spinal Fluid in Twenty-five Cases of Cerebro-spinal Syphilis," Charles C. Sutter, M.D., Rochester.

"Medical Aspects of Cancer," L. Duncan Bulkley, M.D., New York.

Wednesday, May 17th, 2 P. M.

By-Laws, Chapter IX.

Section 3. The election of officers of sections shall be the first order of business of the afternoon meeting of the second day of each annual session. To participate in the election of any section a member must be registered with such section and must have recorded his name and address in the section registry.

Gout.

"The Diagnosis and Clinical Characteristics of Gout," Joseph H. Pratt, M.D., Boston (by invitation).

"The Determination of Uric Acid in the Blood and Remarks Concerning Its Value," Morris S. Fine, M.D., New York (by invitation).

"The Metabolism in Gout," Nellis B. Foster, M.D., New York. (Lantern slides.)

"The Treatment of Gout," Arthur F. Chace, M.D., New York. (Lantern slides.)

"Cases of Unusual and Atypical Joint Diseases," Harlow Brooks, M.D., New York. (Lantern slides.)

Thursday, May 18th, 9.30 A. M.

"Functional and Organic Deformities in Nervous Diseases as Shown by Cases," Tom A. Williams, M.D., Washington, D. C. (by invitation).

"Tobacco and Blood Pressure," W. Gilman Thompson, M.D., and William H. Sheldon, M.D., New York.

"Studies in Acidosis," Charles G. Stockton, M.D., and John L. Butsch, M.D., Buffalo.

"Pernicious Anemia," Allen A. Jones, M.D., Buffalo.

"Recent Studies in Diabetes Mellitus," John R. Williams, M.D., Rochester. (Lantern slides.)

SECTION ON SURGERY.

Chairman, Harry R. Trick, M.D., Buffalo.
Secretary, G. Scott Towne, M.D., Saratoga Springs.
Place of Meeting, Casino Parlor.

Tuesday, May 16th, 2 P. M.

"Post-Operative Ventral Hernia," Edwin MacD. Stanton, M.D., Schenectady.

"Primary Sarcoma of the Small Intestine; with Report of a Case," Edgar A. Vander Veer, M.D., Albany.

"The Surgery of Splenic Anemia," George W. Cottis, M.D., Jamestown.

"Recent Progress in the Operative Treatment of Empyema of the Thorax," Howard Lilienthal, M.D., New York.

"Symptoms and Diagnosis of Cholelithiasis," Russell S. Fowler, M.D., Brooklyn. (Lantern slides.)

Wednesday, May 17th, 9.30 A. M.

Symposium with Section on Pediatrics.

"Types of Cerebral Defects in Children that May be Benefited by Operation," Herman G. Matzinger, M.D., Buffalo.

"Results of Cranial Decompression in Selected Types of Cerebral Spastic Paralysis Due to Hemorrhage," William Sharpe, M.D., New York.

Discussion on papers of Drs. Matzinger and Sharpe, opened by Charles G. Kerley, M.D., and Benjamin Farrell, M.D., New York, and Edgar R. McGuire, M.D., Buffalo.

"Toxæmia of Intestinal Obstruction in Children," Irving M. Snow, M.D., Buffalo.

"Intestinal Obstruction in Children with Special Reference to Intussusception," Edward W. Peterson, M.D., New York.

"The Surgical Treatment of Intestinal Toxæmia," Jerome M. Lynch, M.D., New York.

Discussion on papers of Drs. Snow, Peterson and Lynch to be opened by Arthur W. Elting, M.D., Albany, Eugene H. Carpenter, M.D., Oneida, John F. Erdmann, M.D., Samuel Lloyd, M.D., and Godfrey R. Pisek, M.D., New York.

Wednesday, May 17th, 2 P. M.

By-Laws, Chapter IX.

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"The Causation and Treatment of Idiopathic, Operative, and Post-operative Ano-rectal Hemorrhage," Samuel G. Gant, M.D., New York.

Discussion opened by Descum C. McKenney, M.D., Buffalo.

"Radium Treatment of Various Surgical Conditions," Joseph B. Bissell, M.D., New York.

"Some Types of Spinal Injuries," Prescott LeBreton, M.D., Buffalo. (Lantern slides.)

"The Treatment of Anterior Poliomyelitis," Charlton Wallace, M.D., New York. (Lantern slides.)

"Moving Picture Demonstration of Bone Graft Technique," Fred H. Albee, M.D., New York.

Thursday, May 18th, 9.30 A. M.

"Diagnosis of Renal Tuberculosis," Thomas F. Laurie, M.D., Auburn.

"Prognosis and Treatment of Renal Tuberculosis," Edgar R. McGuire, M.D., Buffalo.

"Decapsulation for Chronic Bright's Disease," Samuel Lloyd, M.D., New York.

"Ureteral Calculi," Edwin Beer, M.D., New York. (Lantern slides.)

"Pyelography," Henry G. Bugbee, M.D., and Leon T. Le Wald, M.D., New York. (Lantern slides.)

"Moving Pictures of Operations Upon the Kidney," J. Bentley Squier, M.D., New York.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Chairman, George Gray Ward, Jr., M.D., New York.
Secretary, George B. Broad, M.D., Syracuse.
Place of Meeting, Casino Reading Room.

Tuesday, May 16th, 2 P. M.

"Blood Pressure in the Toxæmia of Pregnancy," Francis C. Goldsborough, M.D., Buffalo.

"The Treatment of Breach Presentations," Ross McPherson, M.D., New York.

"The Influence of Luetic Invasion in Gynecology and Obstetrics," J. Wesley Bovee, M.D., Washington, D.C. (by invitation).

"A Further Report on the Technic of Abdominal Cæsarean Section," William M. Brown, M.D., Rochester.

"End Results in the Present Day Treatment of Puerperal Sepsis," George W. Kosmak, M.D., New York.

Wednesday, May 17th, 9.30 A. M.

"Results and Technic of Vaginal Subtotal Hysterectomy for Procidentia and Cysto-Rectocele, associated with Fibroid Growths or Fibrosis Uteri," Hiram N. Vineberg, M.D., New York. (Lantern slides.)

"The Technic of Vaginal Plastic Operations for Cysto-Rectocele and Prolapse of the Uterus," Robert T. Frank, M.D., New York. (Lantern slides.)

"The Usefulness and the Definite Limitations of the Pessary Treatment of Retroversion and Prolapse," Robert L. Dickinson, M.D., Brooklyn. (Lantern slides.)

Discussion on papers by Drs. Vineberg, Frank and Dickinson, opened by J. Riddle Goffe, M.D., New York.

"The Genital Reflexes and Their Role in the Production of Symptoms Arising in the Pelvis," Richard R. Smith, M.D., Grand Rapids, Mich. (by invitation).

"Gynecologic Surgery in Hystero-Neurasthenic Patients," Harry S. Crossen, M.D., St. Louis, Mo. (by invitation).

Wednesday, May 17th, 2 P. M.

By-Laws, Chapter IX.

SECTION 3. The election of officers of sections shall be the first order of business of the afternoon meeting of the second day of each annual session. To participate in the election of any section a member must be registered with such section and must have recorded his name and address in the section registry.

"Practical Aspects of the Internal Ovarian Secretion," William P. Graves, M.D., Boston, Mass. (by invitation).

"A Critical Review of the Operative Results in 500 Cases of Pelvic Inflammation," John O. Polak, M.D., Brooklyn.

"Infection of the Uterine Appendages; Its Sequlæ; Its non-Sacrificial Treatment," Edward E. Montgomery, M.D., Philadelphia, Pa. (by invitation).

"Resection of the Pars-Interstitiality in Diseases of the Fallopian Tube with a View to Conservation of the Uterus," Lillian K. P. Farrar, M.D., New York.

"Renal Tuberculosis," Henry D. Furniss, M.D., New York.

Thursday, May 18th, 9.30 A. M.

"Diagnosis in Gynecology: What a Routine Physical Examination of the Female Pelvis Should Be, and What It Should Accomplish," Thomas J. Watkins, M.D., Chicago, Ill. (by invitation).

"Some Mistakes in the Diagnosis of Ectopic Pregnancy," Claud C. Lytle, M.D., Geneva.

"Accidental Hemorrhage and Its Treatment," James K. Quigley, M.D., Rochester.

"The Treatment of Procidentia Uteri," George Chandler, M.D., Kingston.

"Tortion of the Pedicle of Ovarian Cysts Complicating Acute Appendicitis," Ross G. Loop, M.D., Elmira.

SECTION ON EYE, EAR, NOSE AND THROAT.

Chairman, Percy Fridenberg, M.D., New York.
Secretary, Thomas H. Farrell, M.D., Utica.
Place of Meeting, Court Room, City Hall.

Tuesday, May 16th, 2 P. M.

Symposium on Labyrinthine Disease.

"Diagnosis," John B. Rae, M.D., New York.

"Treatment," Wendell C. Phillips, M.D., New York.

Discussion on Labyrinthine Disease opened by Alfred Braun, M.D., Edward B. Dench, M.D., Isidore Friesner, M.D., and John D. Richards, M.D., New York; W. Scott Renner, M.D., Buffalo.

"End Results of the Radical Mastoid Operation," Thomas J. Harris, M.D., New York.

Discussion opened by James F. McKernon, M.D., New York; Thomas H. Halsted, M.D., Syracuse; Joel M. Ingersol, M.D., Rochester.

"Direct Medication of the Bronchi for Asthma," Wolff Freudenthal, M.D., New York.

Discussion opened by John Kepke, M.D., Brooklyn.

"Endoscopy of the Oesophagus and Upper Air Passages in Children," Charles J. Imperatori, M.D., New York.

Discussion opened by Hubert Arrowsmith, M.D., Brooklyn; John McCoy, M.D., and Sidney Yankauer, M.D., New York.

"Surgical Treatment of Laryngeal Cancer," John E. MacKenty, M.D., New York. (Lantern slides.)

Discussion opened by George E. Brewer, M.D. and Seward Erdman, M.D., New York.

Wednesday, May 17th, 9.30 A. M.

"Extraction of Cataract from the Vitreous," Edgar S. Thomson, M.D., New York.

Discussion opened by J. Herbert Claiborne, M.D., Charles B. Meding, M.D. and Robert G. Reese, M.D., New York.

"Serum Therapy in Ophthalmology," Lee M. Francis, M.D., Buffalo.

Discussion opened by Wendell Reber, M.D., Philadelphia (by invitation); Colman W. Cutler, M.D., and A. Edward Davis, M.D., New York.

"Internal Secretions and Eye Disease," Otto W. A. Schirmer, M.D., New York (by invitation).

Discussion opened by Joseph Fraenkel, M.D., and Henry H. Tyson, M.D., New York.

"Intra-Cranial Surgery and Its Relations to Ophthalmology," Charles A. Elsberg, M.D., New York.

Discussion opened by James Bordley, Jr., M.D., Baltimore, Md. (by invitation); Harvey Cushing, M.D., and Clifford B. Walker, M.D., Boston (by invitation).

Wednesday, May 17th, 2 P. M.

By-Laws, Chapter IX.

Section 3. The election of officers of sections shall be the first order of business of the afternoon meeting of the second day of each annual session. To participate in the election of any section a member must be registered with such section and must have recorded his name and address in the section registry.

Symposium on Radiography of the Head in Its Relation to Diseases of the Eye, Ear, Nose and Accessory Cavities.

(Lantern slides.)

"Radiography of the Accessory Sinuses," Eugene W. Caldwell, M.D., New York.

"Radiography of the Eye and Orbit," George S. Dixon, M.D., New York.

"Radiography of the Mastoid Process," Frederick M. Law, M.D., New York.

"Radiography of the Sella Turcica and Pituitary Body," George C. Johnston, M.D., Pittsburgh, Pa. (by invitation).

Discussion on Radiography of the Head opened by Ellice M. Alger, M.D., Cornelius G. Coakley, M.D., Isaac S. Hirsch, M.D., Leon T. Le Wald, M.D., William H. Luckett, M.D., William H. Stewart, M.D., and John E. Weeks, M.D., New York.

"Treatment of Maxillary Sinus Disease," Clement F. Theisen, M.D., Albany.

Discussion opened by Lee M. Hurd, M.D., and Sidney Yankauer, M.D., New York; Nathan D. McDowell, M.D., Rochester; James F. McCaw, M.D., Watertown.

Thursday, May 18th, 9.30 A. M.

"The Conellan-King Diplococcus as a Causative Factor in Diseases of the Nose and Throat," James J. King, M.D., New York. (Lantern slides.)

Discussion opened by Harold Hays, M.D., and J. J. Conellan, M.D., New York (by invitation).

"The Tonsil and Its Prophylaxes," Henry H. Forbes, M.D., New York.

Discussion opened by Charles G. Kerley, M.D., Henry W. Frauenthal, M.D., Godfrey R. Pisek, M.D., and Abraham L. Goodman, M.D., New York; Burton S. Booth, M.D., Troy; Walter S. Daly, M.D., Ogdensburg.

"Effects of Tonsil Operations on the Singing Voice," Irving W. Voorhees, M.D., New York.

Discussion on Tonsil Operations opened by H. Holbrook Curtis, M.D., P. M. Marafioti, M.D. (by invitation), Frank E. Miller, M.D., Clarence C. Rice, M.D., New York.

"Horse Serum in Tonsil Operations," James G. Dwyer, M.D., New York.

Discussion opened by John D. Jones, M.D., Utica; Clement F. Theisen, M.D., Albany; James J. Mooney, M.D., Buffalo.

SECTION ON PEDIATRICS.

Chairman, DeWitt H. Sherman, Buffalo.
Secretary, Edward J. Wynkoop, Syracuse.
Place of Meeting, Casino Building, second floor.

Tuesday, May 16th, 2 P. M.

Casino Auditorium.

Joint Meeting with Sections on Medicine and Public Health.

Medical Examination of School Children.

"The Vision of the School Child," F. Park Lewis, M.D., Buffalo. (Lantern slides.)

"Some Practical Experiences in Medical Inspection," William A. Howe, M.D., Albany.

"The Neuropathic Child," Edward B. Angell, M.D., Rochester.

"The Open Air School Child as a Type," Joseph C. Palmer, M.D., Syracuse.

"The Health of Rural Children," Thomas D. Wood, M.D., New York.

"Scope of Practicable Examination in Routine School Medical Inspection," Clinton P. McCord, M.D., Albany (by invitation).

"The Effect of Malformation and Infection of the Oral Cavity of the Child, Upon Its Future Health," Stephen Palmer, D.D.S., Poughkeepsie (by invitation).

Wednesday, May 17th, 9.30 A. M.

Casino Parlor.

Symposium with the Section on Surgery.

"Types of Cerebral Defects in Children that May Be Benefited by Operation," Herman G. Matzinger, M.D., Buffalo.

"The Results of Cranial Decompression in Selected Types of Cerebral Spastic Paralysis Due to Hemorrhage," William Sharpe, M.D., New York.

Discussion on papers of Drs. Matzinger and Sharpe, opened by Charles G. Kerley, M.D., and Benjamin Farrell, M.D., New York, and Edgar R. McGuire, M.D., Buffalo.

"Toxæmia of Intestinal Obstruction in Children," Irving M. Snow, M.D., Buffalo.

"Intestinal Obstruction in Children with Special Reference to Intussusception," Edward W. Peterson, M.D., New York.

"The Surgical Treatment of Intestinal Toxaemia," Jerome M. Lynch, M.D., New York.

Discussion on papers of Drs. Snow, Peterson and Lynch to be opened by Arthur W. Elting, M.D., Albany, and Eugene H. Carpenter, M.D., Oneida, John F. Erdmann, M.D., Samuel Lloyd, M.D., and Godfrey R. Pisek, M.D., New York.

Wednesday, May 17th, 2 P. M.

By-Laws, Chapter IX.

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"Achondroplasia, Its Differentiation from Rickets and Other Conditions," Charles Herrman, M.D., New York. (Lantern slides.)

Discussion opened by George D. Scott, M.D., Rudolph D. Moffett, M.D., and Abraham L. Goodman, M.D., New York.

"Skin Test in Poliomyelitis," Albert D. Kaiser, M.D., Rochester.

Discussion opened by J. Roberts Johnson, M.D., Syracuse, Conway Frost, M.D., Utica, and Victor M. Rice, M.D., Batavia.

"The Cell Count of Cerebro-spinal Fluids," Joseph Roby, M.D., Rochester.

Discussion opened by William A. Groat, M.D., Syracuse, and T. Wood Clarke, M.D., Utica.

"Eczematous Conditions in Infants and Young Children," Charles G. Kerley, M.D., New York.

Discussion opened by John A. Fordyce, M.D., and Oscar M. Schloss, M.D., New York.

"The Control of Infectious Diseases," J. Roberts Johnson, M.D., Syracuse.

Subject to be announced, Alfred Hand, Jr., M.D., Philadelphia, Pa. (by invitation).

Thursday, May 18th, 9.30 A. M.

"Typhoid Fever in Children," George C. Sincerbeaux, M.D., Auburn.

Discussion opened by A. Clifford Mercer, M.D., Syracuse, Henry A. Hoyt, M.D., Watertown, Joseph B. Ringland, M.D., Oswego, and Emory W. Carr, M.D., Lyons.

"A Scheme of State Control for Dependent Infants," Henry Dwight Chapin, M.D., New York.

Discussion opened by Henry L. K. Shaw, M.D., Albany, and Philip Van Ingen, M.D., New York.

"Pinworms as a Cause of Appendicitis," Alfred W. Armstrong, M.D., Canandaigua.

Discussion opened by Frederick H. Flaherty, M.D., Syracuse, Eugene H. Carpenter, M.D., Oneida, Otto Pfaff, M.D., Oneida, and William D. Johnson, M.D., Batavia.

"The Early Diagnosis of Pott's Disease," Stephen L. Taylor, M.D., Kenwood.

Discussion opened by Charles D. Napier, M.D., Brooklyn, Godfrey R. Pisek, M.D., New York, Clarence E. Coons, M.D., and Donald S. Childs, M.D., Syracuse.

SECTION ON PUBLIC HEALTH, HYGIENE AND SANITATION.

Chairman, Joshua M. Van Cott, M.D., Brooklyn.
Secretary, Henry G. Webster, M.D., Brooklyn.
Place of Meeting, Stock Room, United States Hotel.

Tuesday, May 16th, 2 P. M.

Casino Auditorium.

Joint Meeting with Sections on Medicine and Pediatrics.

Medical Examination of School Children.

"The Vision of the School Child," F. Park Lewis, M.D., Buffalo. (Lantern slides.)

"Some Practical Experiences in Medical Inspection," William A. Howe, M.D., Albany.

"The Neuropathic Child," Edward B. Angell, M.D., Rochester.

"The Open Air School Child as a Type," Joseph C. Palmer, M.D., Syracuse.

"The Health of Rural Children," Thomas D. Wood, M.D., New York.

"Scope of Practicable Examination in Routine School Medical Inspection," Clinton P. McCord, M.D., Albany (by invitation).

"The Effect of Malformation and Infection of the Oral Cavity of the Child, Upon Its Future Health," Stephen Palmer, D.D.S., Poughkeepsie (by invitation).

Wednesday, May 17th, and Thursday, May 18th.

By-Laws, Chapter IX.

Section 3. The election of officers of sections shall be the first order of business of the afternoon meeting of the second day of each annual session. To participate in the election of any section a member must be registered with such section and must have recorded his name and address in the section registry.

Title to be announced, Alice Hamilton, Bureau of Labor Statistics, Chicago, Ill. (by invitation).

"Deaths from Chicken Pox, Measles and Mumps," Linsly R. Williams, M.D., Deputy Commissioner, Dept. of Health, State of New York, Albany.

"Welfare Work of the Metropolitan Life Insurance Company for Their Employees," Lee K. Frankel, Sixth Vice-President, Metropolitan Life Insurance Co., New York (by invitation).

Title to be announced, Benjamin C. Marsh, Executive Secretary, New York Congestion Committee (by invitation).

"Recent Advances in Cancer Research," William H. Woglom, M.D., Crocker Cancer Fund, New York.

"Experience in an Epidemic of Poliomyelitis," Joseph Roby, M.D., Rochester.

"Epidemic Poliomyelitis," Francis Eustace Fronczak, M.D., Health Officer, Buffalo.

"Health Center Field Work," Arthur C. Schaefer, M.D., Buffalo.

"Free Dispensary Features of Health Center Work," Walter S. Goodale, M.D., Supt. Bureau of Hospitals, Buffalo.

"The Education of Health Officers," Frank Overton, M.D., Patchogue.

"Contract Practice," John V. Woodruff, M.D., Buffalo.

"Will the Private Practitioner Determine the Future Public Health Work?" Haven Emerson, M.D., President, Department of Health, New York.

"The Relation of the Medical Profession to the State," Otto V. Huffman, M.D., Secretary of Faculty, Long Island College Hospital, Brooklyn.

"The Choice of Tuberculins," Benjamin F. White, Research Laboratory, Otisville (by invitation).

"An Efficient Culture Medium for the Isolation of Typhoid Bacilli from Stools. To be Read by Title." Oscar Teague, M.D., Director of the Laboratory at the New York Quarantine Station and A. W. Clurman (by invitation).

"Studies of the Recent Grip Epidemic in New York," Charles H. Nammack, M.D., Research Laboratories of the Department of Health, New York (by invitation).

ENTERTAINMENTS.

Tuesday Evening, May 16th.

Casino Auditorium.

Reception to Governor Whitman, the retiring president and the president-elect following the General Meeting. Music.

Wednesday, May 17th, 8.30 P. M.

Casino Auditorium.

Smoker.

Vocal music and illustrated talk.

Solos by Mr. Rome N. Fenton, tenor:

1. (a) Arioso from Pagliacci
   (b) Vesti la guibba .... *Leoncavallo*
2. Absent .... *J. W. Metcalf*
3. Élégie .... *Jules Massenet*

Illustrated talk by Arthur W. Elting, M.D., Albany.

"A Hunting Trip to Alaska, Siberia and the Pacific Arctic," with colored lantern slides.

ENTERTAINMENTS FOR WOMEN.

1. Auto trip to Lake Luzerne and Lake George.
2. Bridge Party.
3. Afternoon Reception and Tea.

HOTELS AND GUEST HOUSES.

United States Hotel, Headquarters, Broadway and Division St., adjoining R.R. station. Accommodates 1,200. $5.00 per day, American plan. *Grand Union Hotel*, Broadway, opposite park and Casino entrance. Accommodates 1,200. European plan. *Hotel American*, Broadway, near Washington St. and Division St. Accommodates 200. $3.00 per day, or $4.00 per day with bath, American plan. *Adelphi Hotel*, Broadway, next to United States. Accommodates 120, European plan. Rooms $1.50 to $2.00 per day. *Hotel Carlsbad*, Franklin Sq., next to R.R. station. Accommodates 90, American plan, $3.50 per day with bath. *Strong Spring Hotel*, Circular St., corner Spring. Accommodates 100, American plan, $3.50 to $5.00, with bath. *Summer Rest*, Spring St., opposite park, 50, American plan, $2.00 to $3.00. *Park View*, Circular, corner Spring, 18, American plan, $2.50, with bath. *Broadway House*, North Broadway and Grove St., 42, American plan, $2.00. *Elmwood Hall*, Maple Ave., 60, $2.00, American plan. *Worden Hotel*, Broadway, two blocks from R.R. station, 200, $3.00 and $4.00 per day, American. *Homestead*, 48 Phila St., 26, $1.50, board and lodging. *Vermont House*, Grove St., 148, $2.00, American. *Adirondack Lodge*, Franklin Sq., near R.R. station, 24, $2.50 to $3.00, American. *Columbian Hotel*, Broadway, adjoining trolley station, 150, $3.50, American. *Huestis House and Everett*, South Broadway, 200, $2.50 and $3.00, American. *Mrs. Hodgman's*, 109 Caroline St., near Circular, 24, $2.00 and $3.00. *The Hillside*, Phila St., near Broadway, 50, *The Lafayette*, Circular St., near Broadway, 100, $2.00 to $2.50, American. *The Wellington*, Circular and Phila Sts., 20, $2.00. *The Gifford*, Broadway, 20, $1.50 to $2.00. *Miss Reardon*, 222 South Broadway, 18, $2.50 to $3.50. *Le Wan*, 68 Phila St., 20, *Maple View*, 8 Maple Ave., 16, $1.50. *Mrs. Scovill*, 179 Grand Ave., private house, $2.00. *C. F. Dickinson*, 63 Franklin St., one block from R.R. station, 85, $1.50 to $2.00.

AMENDMENTS TO THE CONSTITUTION AND BY-LAWS.

Which Will be Presented for Action at the Next Annual Meeting.

Amend Article V of the Constitution by adding after "Chairman of standing committees," the words, "retiring president shall be a member of the Council for one year after his term of office expires."

Amend Chapter III, Section 1 of the By-laws by striking out the words, "in the evening," and substituting the word, "on." The section will then read:

"The House of Delegates shall meet annually on the day before the annual meeting of the Society."

Amend Chapter VII, Section 2, of the By-laws by adding a Committee on Economics, consisting of five members, that shall be on the watch for the appearance of any movement affecting the economic life of the membership, that shall at once begin an investigation when such a movement is discovered, and that shall report its findings and make recommendations at least annually to the House of Delegates.

Chapter VII, Section 2: that the Committee on Medical Research shall hereafter be known as the "Committee on Medical Education."

Chapter VII, Section 5 of the By-laws by striking out the word "three," and inserting the word "nine." The By-law will then read:

"The Committee on Public Health shall consist of nine members," etc.

MEETING OF THE COUNCIL.

A Meeting of the Council of the Medical Society of the State of New York was held at the State Society rooms, 17 West 43d Street, March 15, 1916, at 11.30 A. M., Dr. W. Stanton Gleason, President, in the chair. Dr. Albert E. Sellenings, Assistant Secretary.

The meeting was called to order by the President, and on roll call the following answered to their names: Drs. W. Stanton Gleason, Montgomery E. Leary, Thomas H. McKee, Albert E. Sellenings, Alexander Lambert, Albert W. Ferris, Thomas J. Harris, Joshua M. Van Cott, Frank Van Fleet, James E. Sadlier, James S. Cooley, William D. Garlock, Carl G. Leo-Wolf.

Telegrams were read from Drs. Rooney, Ransom, Shanahan and Winter, regretting their inability to be present.

A quorum being present, Dr. Gleason announced the meeting open for business.

The President stated that the meeting had been called to announce officially the death of Dr. Wisner R. Townsend and to consider other current business.

Moved, seconded and carried that a committee of three be appointed to draft resolutions on the death of Dr. Townsend.

The President appointed Drs. Alexander Lambert, Albert W. Ferris and Frank Van Fleet.

The Committee presented the following resolutions:

The Council of the Medical Society of the State of New York records with deep regret the death of Dr. Wisner Robinson Townsend, who died suddenly on March 12, 1916.

Dr. Townsend was born on Staten Island on August 5, 1856. He was educated at Columbia University, receiving his A.B. degree in 1877 and an A.M. degree in 1880. In 1880, he received his degree of M.D. from the College of Physicians and Surgeons. He also served on the Second Surgical Division of Bellevue Hospital, from which he graduated on October 1, 1881. He served as President of the Society of Alumni of Bellevue Hospital from 1892 to 1893. Dr. Townsend was Associate Surgeon, Hospital for Ruptured and Crippled; Consulting Orthopedic Surgeon, French Hospital, Manhattan Maternity and Dispensary, United Hospital, Port Chester, and S. R. Smith Infirmary, Tompkinsville.

He was Secretary of the Joint Committee of Conference of the Medical Society of the State of New York and the New York State Medical Association which drew up the agreement under which these organizations were consolidated under the name of the Medical Society of the State of New York, on December 9, 1905. At the first meeting after the consolidation of these Societies, in January, 1906, Dr. Townsend was elected Secretary, which office he held at the time of his death. From 1908 to 1911 he was a member of the Board of Trustees of the American Medical Association, and in 1910 and 1911 served as Secretary of this Board. From June, 1914, to 1915 he filled the office of Second Vice-President of the American Medical Association. From 1896 to 1904 he held the office of Secretary of the New York Polyclinic Medical School and Hospital. During 1896 he was Second Vice-President of the American Orthopedic Association, and during 1897 held the office of First Vice-President. In 1898 he held the office of President of the American Orthopedic Association. From 1901 to 1908 he was a member of the Executive Committee of the Congress of American Physicians and Surgeons. For many years he was Secretary of the Board of Trustees of the New York Academy of Medicine and held this office at the time of his death.

The Council feels that in the death of Dr. Townsend it has lost one of its most distinguished and zealous members; in its behalf he has labored with untiring energy, and the profession at large will ever be ready to acknowledge the accomplishments which he, as Secretary, has wrought. Dr. Townsend was a man of the highest ideals and the truest principles. His genial good nature and his abounding interest in all medical matters made him prominent in all of his affiliations. In the many organizations of which he was a member he always displayed this intense and active interest, and because of his unusual executive abilities his advice and counsel were eagerly sought. In the special field of surgery in which he was engaged, he had achieved an enviable reputation, and the many institutions with which he was connected will keenly feel the loss of his services. He was the truest and staunchest of friends. His busy and ennobling life will be a loss to the profession and to the world. Those who knew him best, loved and honored him most.

In grateful remembrance of the constant services rendered to this Society and in commemoration of the loss which it has sustained, be it

Resolved, That the Council of the Medical Society of the State of New York express to Dr. Townsend's family an appreciation of his noble character and of his great attainments, and extend to them its sympathies in their bereavement; and be it further

Resolved, That this memorial notice be spread upon the minutes of this Council, that a copy be sent to the family, and that it be published in the medical press.

Alexander Lambert, *Chairman.*
Frank Van Fleet.
Albert W. Ferris.

Moved, seconded and carried that these resolutions be adopted.

The Secretary read the following communication from the Medical Society of the County of Monroe:

Dear Dr. Gleason: I was requested by members of the Medical Society of the County of Monroe to express to you and the Council their sorrow at the announcement of the death of Dr. Wisner R. Townsend, for ten years our much respected and admired Secretary of the Medical Society of the State of New York, our efficient, *par excellence* efficient, Secretary. It is with much regret that the medical profession of the State of New York must record the decease of our member and most useful officer. The loss of Wisner R. Townsend as a member of our profession and as a most widely official co-operator in the transactions of the State Society, is indeed irreparable. We cannot see how the State Society can spare the services of Dr. Townsend. As one remarked, "Dr. Townsend was at once President, Vice-President, Secretary and Counsellor;" quite capable of discharging all of the multiple duties of the several officers of the Medical Society of the State of New York.

Sincerely yours,
John F. W. Whitbeck,
Representing the Medical Society of the County of Monroe.

Dr. McKee stated that the Medical Society of the County of Erie had adopted resolutions on the death of Dr. Townsend and that he and Dr. Leo-Wolf had been appointed to represent that Society at the funeral services.

The Secretary read a letter from Dr. J. C. Bloodgood stating that many of the aims of first aid were defeated and much needless suffering and expense was incurred through lack of uniformity in the first aid methods, packages, equipment and instructions. He, therefore, requested that the Medical Society of the State of New York appoint a First Aid Committee to work in accordance with the resolution adopted by the American First Aid Conference "creating a board of first aid standardization for the purpose of studying first aid problems and standardizing methods, materials and equipment employed in the administration of first aid to those injured in the pursuit of industrial occupations and in war."

Moved, seconded and carried that such a committee be appointed.

The President appointed Drs. James E. Sadlier, Chairman, S. V. Whitbeck, James N. Vander Veer and A. J. Lawler.

Moved, seconded and carried that Dr. Floyd M. Crandall be elected Secretary to fill the vacancy in that office caused by the death of Dr. Townsend.

Dr. Lambert reported on the progress of the Health Insurance Bill, and advised that a special committee be appointed by the State Society, to meet with committees of the American Association of Labor and of the Legislature to consider and elaborate upon the provisions and construction of the bill.

Moved, seconded and carried that a committee of five be appointed. The President appointed Drs. James F. Rooney, Chairman, Samuel J. Kopetzky, James N. Vander Veer, Frank Van Fleet and Franklin C. Gram.

Dr. Lambert, as a member of the Committee on Preparedness reported that Dr. Richard Derby had most efficiently represented the Society at the meeting held at Washington.

The President spoke of the death of Dr. Henry L. Elsner, a former President of the State Society and it was moved, seconded and carried that a committee of three be appointed to present resolutions on Dr. Elsner's death.

The President appointed Drs. Carl G. Leo-Wolf, Thomas H. McKee and Montgomery E. Leary.

The Committee presented the following resolutions:

Whereas, It has pleased Almighty God to call before him Henry L. Elsner, past President of the Medical Society of the State of New York, a teacher and practitioner of national and international prominence, be it

Resolved, That in the demise of Dr. Elsner the profession acknowledges the loss of a wise counsellor, a gifted author, a man of lofty ideals who always had the best interest of the profession at heart. Be it further

Resolved, That a copy of these resolutions be sent to his family and spread upon the minutes of this Council; also that they be published in the medical press.

Carl G. Leo-Wolf.
Thomas H. McKee.
Montgomery E. Leary.

Moved, seconded and carried that these resolutions be adopted.

Dr. Ferris, Chairman of the Committee on Arrangements, reported that he had carefully gone over the question of publishing an illustrated program for the next Annual Meeting and he found that it would be impracticable owing to the great expense attached to such a publication.

Dr. Ferris further reported that all arrangements for the next annual Meeting were progressing favorably.

There being no further business the meeting adjourned at 12.30.

Albert E. Sellenings,
Assistant Secretary.

County Societies

MEDICAL SOCIETY OF THE COUNTY OF ERIE.

Buffalo, N. Y., February 28, 1916.

The postponed meeting of the Medical Society of the County of Erie was held in Townsend Hall.

The Secretary read the minutes of the Annual Meeting held December 20, 1915, and also the minutes of the Council meetings held January 13, 1916, and February 14, 1916, which were approved.

Applications for admission to the Society were received from Drs. Harry J. Hammond, Charles F. Dewitz and Evelyn Hollis Hunt. Upon motion, seconded and carried they were declared duly elected.

Dr. A. T. Lytle, submitted the following amendments to the By-laws:

That Chapter IX of the Bylaws be so amended that Section 4 shall become Section 2; that Section 2 become Section 3; that Section 3, be abolished and that new Sections 4, 5 and 6 shall be created as follows:

Section 4.

Nominations for elective offices may be made at the regular meeting next preceding the annual meeting; nominations so made shall be printed in the notice of the annual meeting.

Section 5.

For use at the annual election the Secretary shall prepare printed ballots which shall contain under the proper titles the names of those nominated according to Chapter IX Section 4, and also space in which may be written the name of any other member for whom a member desires to vote.

Section 6.

Voting shall only be done by members in person depositing a ballot with tellers who shall be appointed by the President and who shall report the result of the election to the Society before the adjournment of the Annual Meeting. The polls shall remain open for not less than two hours after the opening of the Annual Meeting.

In conformity with the By-laws these amendments were laid on the table.

SCIENTIFIC PROGRAM.

Symposium on "Public School Education, from the Standpoint of the Physician."

"Is the School Doing Its Full Duty by the Child"? H. H. Glosser, M.D., Buffalo.

"Education and Mental Preparedness," F. Park Lewis, M.D., Buffalo.

"Education and Physical Preparedness," James W. Putnam, M.D., Buffalo.

"Medical Inspection; Its Results," DeLancy Rochester, M.D., Buffalo.

Discussion by Dr. Thomas H. McKee, Hon. Adelbert Moot, Supt. Henry P. Emerson, Miss Mary H. Lewis, Principal A. Duschak, Principal A. G. Bugbee, followed by a general discussion.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

Post-Mortem Methods. By J. Martin Beattie, M.A., M.D., Professor of Bacteriology, University of Liverpool; Formerly Joseph Hunter Professor of Pathology, University of Sheffield. Cambridge University Press, Fetter Lane, E. C., London, G. P. Putnam's Sons, New York, 1915. Price, $3.25.

Radium, X-Rays and the Living Cell, with physical introduction. By Hector A. Colwell, M.B. (London), D.P.H., (Oxford), late assistant in the Cancer Research Laboratories, Middlesex Hospital and Sidney Russ, D.Sc. (London), Physicist to the Middlesex Hospital, London, G. Bell & Sons, Ltd., 1915, MacMillan Co., New York City.

International Clinics. Vol. I. Twenty-sixth series, 1916. Philadelphia and London, J. B. Lippincott Co.

Handbook of Massage for Beginners. By L. L. Despard, Member and Examiner, Incorporated Society of Trained Masseuses. London, Henry Frowde, Hodder & Stoughton, Oxford University Press, Warwick Square, E. C., also 35 West 32nd Street, New York City, 1915. Price, $2.00.

Treatise on Fractures. By John B. Roberts, A.M., M.D., F.A.C.S., Professor of Surgery in the Philadelphia Polyclinic and College for Graduates in Medicine; and James A .Kelly, A.M., M.D., Attending Surgeon to St. Joseph's, St. Mary's and St. Timothy's Hospitals; Associate in Surgery in the Philadelphia Polyclinic and College for Graduates in Medicine. With 909 illustrations, radiograms, drawings and photographs. J. B. Lippincott Company, Philadelphia and London. Price, $6.00.

New and Nonofficial Remedies, 1916, containing descriptions of the Articles which have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association, prior to January 1, 1916, as published by the American Medical Association, 535 N. Dearborn Street, Chicago, Ill. Price, $1.00.

The Basis of Symptoms. The Principles of Clinical Pathology, by Dr. Rudolph Krehl, Ordinary Professor and Director, Medical Clinic, Heidelberg, Authorized Translation by Arthur Frederic Beifeld, Ph.B., M.D., Instructor in Medicine, Northwestern University Medical School, Chicago, introduction by A. W. Hewlett, M.D., Professor of Internal Medicine, University of Michigan. Third American Edition. Price, $5.00. J. B. Lippincott Co., Philadelphia and London. 1916.

Lymphatic Glands in Meat-Producing Animals. By P. Godbille, Section Chief of the Sanitary Veterinary Inspection of Paris. Translated by Alexander F. Liautard, M.D., V.M., F.R.C.V.S. (Hon.), editor of the American Veterinary Review; author of Manual of Operative Veterinary Surgery, and D. Arthur Hughes, Litt.M., Ph.D., D.V.M., Veterinary Inspector of Meat-Producing Animals, Meats and Meat-Food Products, Quartermaster Corps, United State Army, Chicago; Cloth, 176 pages, sixteen illustrations. Price, $2.00. William R. Jenkins Co., Sixth Avenue at 48th Street, New York.

La Science Francaise. Tome Premier. Par Ministère publique et Beaux-Arts. de l'Instruction deux Volumes. Office National des Universités et Ecoles Francaise. 96 Boulevard Raspail, Paris.

Injuries of the Eyes, Nose, Throat and Ears. By Andrew Maitland Ramsay, M.D., F.R.F.P.S. (Glasgow), Ophthalmic Surg. Royal Infirmary, Glasgow, Major R. A. M. C. (T. F.); J. Dundas Grant, M.D., F.R.C.S. (Eng.), Late Major R. A. M. C. Post Office Rifle Volunteers, King George Hosp., London; Lord Knutsford's and Charles Ernest West, F.R.C.S. (Eng.), Aural Surgeon and Lecturer Aural Surgery St. Bartholomew's Hospital, Captain R. A. M. C. (T. F.). London: Henry Frowde, Hodder & Stoughton, Oxford Univ. Press, Warwick Sq., E. C., and 35 West 2nd St., N. Y. City. 1915. Price, $1.00.

Surgical Operations with Local Anesthesia. Second edition. By Arthur E. Hertzler, A.M., M.D., Ph.D., F.A.C.S., Surgeon Halsted, Swedish and General Hospitals, Kansas City, Mo. 327 pages; 173 illustrations; cloth bound. Price, $3.00. Surgery Publishing Company, New York.

A Guide to Gynecology in General Practice. By Comyns Berkeley, M.A., M.D., M.C. (Cantab) F.R.C.P. (Lond.), Obstetric and Gynecological Surgeon to the Middlesex Hospital and surgeon-in-Charge of its Military Hospital at Clacton-on-the-Sea, Surgeon to the Chelsea Hospital for Women; Victor Bonney, M.S., M.D., B.Sc. (Lond), F.R.C.S. (Eng.), M.R.C.P. (Lond.), Assistant Obstetric and Gynecological Surgeon Middlesex Hospital and Surgeon-in-Charge of Military Hospital at Clacton-on-the-Sea; Gynecological Surgeon to the Miller Hospital. Henry Frowde, Hodder & Stoughton, Warwick Sq., E. C., and 35 West 32nd St., N. Y. City. 1915. Price, $6.50.

Diseases of the Stomach and Upper Alimentary Tract. By Anthony Bassler, M.D., Prof. Clinical Medicine, and Visiting Physician N. Y. Polyclinic School and Hospital; Chief Gastro-enterologist, German Poliklinik, etc. Third edition, revised and enlarged. Illustrated with numerous half-tone and line text engravings, 76 full page half-tone plates (with over 100 figures) plain and in colors, from original photographs and drawings. Philadelphia, F. A. Davis & Co. English Depot, Stanley Phillips, London. 1916.

Book Reviews

X-Rays, How to Produce and Interpret Them. By Harold Mowat, M.D., Edinburgh. Temporary Lieutenant, R. A. M. C., at present Officer to X-Ray Department Meerut Indian General Hospital; Radiographer to Metropolitan Hospital and Royal Chest Hospital. Price, $3.00. London, Henry Frowde, Hodder & Stoughton, Oxford University Press, Warwick Square, E. C., 35 West 32d Street, New York City. 1915.

This little book by Dr. Mowat is an excellent example of the presentation of the subject of Roentgen diagnosis for those who are about to start in this work, or who have had but slight experience.

Nearly half of the book is devoted to the subject of apparatus, and this is well presented. The chapter on X-ray tubes is a good one, although the book was published only recently, no mention is made of either the Coolidge Tube or the Snook Hydrogen Tube. On page 70, Dr. Mowat speaks of aluminum as being a substance very opaque to the rays. It would seem as if this must be a mistake.

The section on the location of foreign bodies is very complete, but no mention is made of the Sweet apparatus, or the Dixon localizer for foreign bodies in the eye.

Chapter one, of part two, is a section on the thorax, deals with the subject of interpretation thoroughly, but the illustrations are poor, and lack definition.

In speaking of the diagnosis of oesophageal conditions he makes no mention of the differential diagnosis of the various forms of intrinsic lesions.

The presentation of gastro-intestinal work is superficial, is by no means complete, and amounts to nothing more than an enumeration of conditions discernible through roentgenography, with some slight description of the different conditions. In dealing with the subject of gastric ulcer, no account is taken of the indurated ulcer. The subject of cancer of the stomach and duodenal conditions are poorly presented, but this is probably due to the English technic, by which examinations are made fluoroscopically, instead of by the roentgenographic method.

The examination of the urinary tract is well given but in speaking of pyelography, no mention of the differential points of diagnosis are made. Figure 65 in this portion is presented side-wise.

The chapters on injuries of bones and joints, and also bone diseases are excellent, and leave practically nothing to be desired.

Aside from the abdominal work, the book is a valuable addition to the slowly growing roentgenological library.

A Text-book for Midwives. By John S. Fairbairn, M.A., B.M., B.Ch. (Oxon.), F.R.C.P. (Lond.), F.R.C.S. (Eng.), Obstetric Physician, with charge of out-patients and maternity ward, St. Thomas' Hosp. Three plates and 104 illustrations, five in color. London, Henry Frowde, Hodder & Stoughton, Warwick Square, E. C., Oxford Univ. Press, 35 West 32d Street, New York City. Price, $3.75.

One in reading this volume would make a very natural criticism of the material being too abundant and the subject gone into too deeply for the implied purpose of its publication, that is, for a course in Midwifery, but this criticism is forestalled in the author's preface. Dr. Fairbairn's experience with midwives has been more fortunate than obtained by those of us who observe them in this country which speaks well for future graduates. Great attention is paid to detail. The study of the subject from such a publication must needs require an extension of the time usually devoted by the students, the ordinary period of three months is too short for its complete digestion.

The chapter on diagnosis of pregnancy is very short. In the management of labor the Sims position is recommended for delivery as is natural in an English work, many of us in this country feel that there are well grounded objections to its use. Regarding abnormalities the midwife is allowed too much latitude in her judgment as to when to call aid.

These objections are minor and individual and the reviewer wishes to compliment the author whom he recognizes from a perusal of the book as an enthusiast in his subject and who looks for an improvement of the conditions under which much midwifery is done.

A. M. Judd.

Field Hospital and Flying Column, being the Journal of an English Nursing Sister in Belgium and Russia. By Violetta Thurstan. G. P. Putnam's Sons, New York and London, 1915. Price, $1.00.

This is a very interesting recital by an English nurse of her experiences in Belgium and Russia. She was in Antwerp at the coming of the Germans, and the pictures drawn of the events of that time are most absorbing. The many adventures gone through in caring for French, German and Russian soldiers are told in a simple and self-effacing way. The author seems fair enough in her criticisms of the enemy. No hysterical allegations are made. The book is free from the sentimentalism with which the pages of so many books on the War are interlarded.

A. C. J.

Outlines of Internal Medicine. For the Use of Nurses. By Clifford Bailey Farr, A.M., M.D., Instructor in Medicine, University of Pennsylvania; Assistant Visiting Physician, Philadelphia General Hospital; Pathologist to the Presbyterian Hospital. 12 mo., 408 pages, illustrated with 71 engravings and 5 plates. Cloth, $2.00 net. Lea & Febiger, publishers, Philadelphia and New York, 1915.

While there is a difference of opinion as to how much a nurse should be taught of medicine, there can be no question that she should have an intelligent conception of the ordinary course of the commoner diseases. Dr.

Farr's book consists of a series of sketches which should supply this information in a very acceptable manner. It also includes a consideration of some of the less common diseases for purpose of reference, should such be desired. Etiology is presented with sufficient fullness to rationalize the very practical directions as to prophylaxis, and is considered both generally and specifically in connection with the various disease pictures. Under "symptoms," particular attention is paid to those complications for which the nurse should be on the watch. "Treatment," is described for the most part in general terms.

There are a few inaccuracies of statement of which the author is no doubt by this time aware. It is to be hoped that among the changes which appear in the next edition will be found a modification of the statement that "climatic treatment (of tuberculosis) is largely discountenanced at the present time"; although the context suggest that the author did not mean exactly what he said.

Tasker Howard.

Diseases of the Skin and the Eruptive Fevers. By Jay Frank Schamberg, M.D., Professor Dermatology and Infectious Eruptive Diseases, Philadelphia Polyclinic and College for Graduates in Medicine. Third edition, revised. Octavo of 585 pages, 248 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $3.00 net.

The third edition of Dr. Schamberg's work has been greatly enriched by a number of new chapters as well as some entirely re-written in order to bring them up-to-date, as for instance the modern treatment of syphilis.

This book is particularly valuable to the general practitioner, because it contains all of the essentials of skin diseases as well as a comprehensive exposition of the eruptive fevers, written by a master in dermatology and an expert in contagious diseases.

J. M. W.

Syphilis as a Modern Problem. By William Allen Pusey, M.D., Professor Dermatology, University Illinois. Cloth, 50 cents; paper, 25 cents. Pp. 129. Chicago: American Medical Association, 1915.

This monograph is a part of the Commemoration Volume, issued by the American Medical Association at its meeting in San Francisco, June 22 to 26, 1915, as a tribute to the medical science, which made possible the building of the Panama Canal and the Panama Pacific Exposition.

The first three chapters are devoted to the history of syphilis and our understanding of the disease at the beginning of the twentieth century.

The remaining chapters deal with the subject as a modern problem. The author has clothed the scientific subject in such simple words that it will undoubtedly be read with benefit by the laity as well as by the medical man.

Within the one hundred and twenty-four pages is written the whole story of syphilis as it is understood at the present day, as well as a prophetic forecast of its control and subjugation in the future.

Professor Pusey and the American Medical Association have done a great service to mankind in writing and publishing this work upon a subject that even yet is but little understood.

Every medical practitioner and as many of the laity as possible should own and study the book.

J. M. W.

Mental Medicine and Nursing, for use in training schools for nurses and in medical classes. By Robert Howland Chase, M.A., M.D., Physician-in-Chief, Friends Asylum for the Insane. Seventy-eight illustrations. J. B. Lippincott Company, Philadelphia and London. Price, $1.50.

This little work, though it claims nothing more than an elementary status, certainly tells the whole story for which it is intended clearly and concisely. In the description of mental disease it only gives such brief outlines as are necessary, but in treatment it covers the whole ground thoroughly. The chapter on psychology is well-worth reading as it covers the entire subject in a clear manner and avoids the use of Greek terms, often coined ones, which render so many modern work unintelligable to the reader.

Arthur C. Brush.

Materia Medica and Therapeutics. A Text-Book for Nurses. By Linnette A. Parker, B.Sc., R.N., Instructor in Nursing and Health, Teachers College, Columbia University. 12 mo, 311 pages, illustrated with 29 engravings and 3 plates. Cloth, $1.75, net. Lea & Febiger, Publishers, Philadelphia and New York, 1915.

This text-book for nurses by a nurse is a very satisfactory member of the series. Its treatment of materia medica, *per se*, furnishes perhaps, "about as much religion as my William likes," but when supplemented by experiments, demonstrations, etc., as suggested by the author, should fulfill her purpose of giving the nurse "some conception of the world-wide drug industry, that she may appreciate the work of the many trained scientific men engaged in it, and on the other hand, that she may be cognizant of the evils of patent medicines and nostrums."

The bulk of the book is devoted to therapeutics, and its statements are remarkably clear, up-to-date, and correct. The nurse who has mastered its directions as to her part in the administration of materia medica and therapeutics, drugs, will deserve the confidence of the attending physician. Non-medicinal therapeutic measures are briefly described. For a full consideration of these, special works would naturally be required, but the clear directions given are sufficient to give the beginner a fair working knowledge of them.

T. H.

Applied Immunology. By B. A. Thomas, A.M., M.D., Professor Genito-Urinary Surgery, Polyclinic Hospital and College for Graduates in Medicine; Instructor Surgery University Pennsylvania; Associate William Pepper Laboratory Clinical Medicine, and R. H. Ivy, M.D., D.D.S., Assistant Instructor Surgery, University Pennsylvania; Instructor Genito-Urinary Surgery, Polyclinic Hospital and College for Graduates in Medicine, Philadelphia. First edition. Philadelphia and London, J. B. Lippincott Co. 1915.

This book of 359 pages deals with the practical application of sera and bacterins prophylactically, diagnostically and therapeutically and has a valuable appendix on serum treatment of hemorrhage and on organotherapy and chemotherapy. The subject matter is well arranged and so presented that especially with the aid of the brief glossary at the end of the book it makes comprehensive reading for any physician whose work or inclination interests him in this field of medicine. The five colored plates, the sixty-eight illustrations and the print are good. The object of the authors' to deal with experimental research and theories only so far as they may assist in a more thorough comprehension of biological prophylaxis, diagnosis and therapeusis is consistently adhered to.

The primary object to crystallize and detail in a simple way the practical phases of serum and bacterin applications in medicine is realized in a degree not usual to books on these subjects.

Chapters treating of Abderhaldens test for pregnancy, the Schick reaction, salvarsanized serum, serum treatment of hemorrhage and other fairly recent contributions to this field of endeavor brings the book well up to date and makes it a valuable work for reference.

T. H. Dexter.

THE QUESTION OF ALCOHOL. By EDWARD HUNTINGTON WILLIAMS, M.D., formerly Associate Professor of Pathology, State University, Iowa.

The papers which make up this book were originally published in the *Medical Record* and the *Survey*. The last chapter—What Shall We Do About It?—is a condensation of an address delivered by the author's brother, Dr. Henry Smith Williams, in 1914, at the National Conference on Race Betterment. The subjects covered are the drug-habit menace, temperance instruction in public schools and its results, liquor legislation and insanity, and the liquor question in medicine. The evils that have been accentuated by ill-advised temperance propaganda are frankly indicted. Temperance is not confounded with prohibition. The remedies proposed seem rational enough, so far as they go, and the author realizes that prohibition fails to prohibit, or else gives rise to something worse than alcoholism. Something must be substituted for the saloon, and Dr. Williams proposes workingmen's clubs, including reading rooms, amusement halls and gymnasia. While this and other proposals which he makes would do much good, the reviewer does not feel that Dr. Williams has gotten to the heart of the problem. Alcoholism is a source of enormous governmental revenues. It is an economic asset which aids greatly in oiling political wheels. One might say that the governmental machine is equally interested with private traffickers in perpetuating alcoholism. How can our social and political habits with respect to alcoholism be changed? How can the leopard change his spots? How can anyone else effect the biological miracle for him? Nor will workingmen's clubs alter certain evils flowing from industrial exploitation or certain brutalizing influences identified with the present social order. So far as we can see, the book is silent on these matters.

A. C. J.

PRACTICAL BANDAGING, including Adhesive and Plaster of Paris Dressings. By ELBRIDGE L. ELIASON, A.B., M.D., Asst. Instructor Surgery, Univ. Pa.; Asst. Surgeon, Univ. Pa. Hosp. 155 original drawings and photographs. J. B. Lippincott Co., Phila. and London, 1914.

A small, concise, well-written work upon bandaging, showing the various stages of application pictorially, is a good addition to the library of nurses and surgical internes while in training.

Such a book has been presented by Dr. E. L. Eliason. It is inscribed to Professor Edward Martin, of Philadelphia.

The book is well divided into five parts dealing respectively with roller, miscellaneous and elastic bandages, adhesive dressings and plaster of Paris bandages. It contains 124 pages, 147 illustrations taken mainly from photographs.

The author has endeavored to clear up certain obscure points in application and has succeeded. The style is clear and simple. Well recognized classical types are described as well as many good modifications which the writer has found to be more efficient.

This is a practical little book and deserves commendation. The illustrations especially are to be praised. They are wisely selected, profuse and highly desirable in a descriptive work of this sort.

ROYALE H. FOWLER.

THE DISEASES OF THE SKIN. By WILLMOTT EVANS, M.D., B.S., B.Sc., F.R.C.S. University of London Press, London.

This is another instance of multiplying books upon a subject that only interests a limited number of physicians.

From the size and general character of the book the author intends it for a guide to students and practitioners.

In spite of the hope expressed in the preface it fails to be of much value to the general practitioner, because the subject has not been gone into deeply enough. What small work upon any medical subject does? It probably will fail as a guide to the undergraduate because there are other better small works by English dermatologists.

The book is agreeably written, and shows the author knows his subject.

W.

SENESCENCE AND REJUVENESCENCE. By CHARLES MANNING CHILD, Department of Zoology, University of Chicago. The University Chicago Press, Chicago, Ill. Price $4.00 net.

Child's work is divided into five parts. Part one deals with the problem of organic constitution; part two is an experimental study of physiological senescence and rejuvenescence in the lower animals; part three treats of individuation and reproduction in relation to the age cycle; part four discusses gametic reproduction in relation to the age cycle, and part five advances some theoretical and critical data. The book is an attempt on the part of a biologist to throw more light upon a problem interest in which in the past has been very largely confined to the medical profession. The nature of senescence and the conditions of rejuvenescence are discussed in the light of most thorough experimentation, and some new and interesting conclusions are submitted.

A. C. J.

DISEASES OF THE NOSE AND THROAT. By ALGERNON COOLIDGE, A.B., M.D., Professor of Laryngology in the Harvard Medical School, Laryngologist in the Massachusetts General Hospital. Illustrated. Philadelphia and London. W. B. Saunders Company, 1915. 12mo., 360 pp.

This new work on the diseases of the nose and throat is avowedly for the student and practitioner. The illustrations are almost without exception original with the author. They are chiefly outline drawings and their simplicity and lack of detail contribute, we believe, to an easy understanding of the text they illustrate. But six illustrations of the instruments employed in treatment appear. We are willing to praise this innovation in that valuable space is not occupied by (often) unsightly lithographs of varying grades of workmanship, though we but partly agree with the author that the clinic and catalogues of manufacturers are sufficiently appropriate sources of information regarding the instruments to be employed in this division of surgery. We would suggest that a printed list of necessary instruments, giving the name of their originators for identification in the catalogues and their uses, would not be inappropriate. The clear style of the author's text is admirable, which, combined with the illustrations here presented as new, conveys to the mind of the student a pleasant sense of freshness to the subject altogether agreeable.

WILLIAM C. BRAISLIN.

T. B. PLAYING THE LONE GAME, CONSUMPTION. By THOMAS CRAWFORD GALBREATH. Duodecimo of 74 pages, with illustrations. New York City, Journal of the Outdoor Life Publishing Co., 1915. Paper, 25 cents.

Galbreath, out of his personal experience with tuberculosis, writes of "how to play the game." The record of this experience ought to prove most valuable to beginners who do not know how to play. There is a great deal of practical wisdom in the book and few "breaks" by the lay author—so few, in fact, that we recommend the book to incipient sufferers who without some such guide would get into the game slowly, clumsily, and perhaps fatally, or never get into it at all. If all sufferers were endowed with Galbreath's character and intelligence and initiative the mortality would be very low. The production of such a book shows that here was an exceptional victim.

In Memoriam

WISNER R. TOWNSEND, M.D.
Died March 12, 1916.

A distinct sense of personal loss has come to every member of the Medical Society of the State of New York in the death of Dr. Townsend. He was our friend, devoted to our interests through the society he loved so well.

WILLIAM L. RODMAN, M.D.
Died March 8, 1916.

Dr. Rodman was crowned with the highest honor in the gift of the Medical fraternity of this country. Stricken while maintaining the high ideals and traditions of his chosen profession, it is for us to honor him who honored us.

HENRY L. ELSNER, M.D.
Died February 17, 1916.

Dr. Elsner served well and faithfully the interests of this Society as its President in 1901. The memory of a true noble life has an influence, an example that does not die, such an influence is permanent and vitalizing.

W. STANTON GLEASON.

MEDICAL SOCIETY OF THE COUNTY OF ERIE.

A special meeting of the Council was held on Monday, March 13, 1916. Present: Drs. Barrows, Bonnar, Cott, Woodruff, Gram and Russell.

President Barrows announced that this special meeting was called for the purpose of taking suitable action upon the sudden death of Dr. Wisner Robinson Townsend, of New York City, Secretary of the Medical Society of the State of New York.

On motion of Dr. Cott, seconded by Dr. Bonnar, the following action was taken and ordered spread upon the minutes:

MEMORIAL.

The Medical Society of the County of Erie has learned with profound sorrow of the sudden death of Dr. Wisner Robinson Townsend, and desires to express sincere regrets for the loss which the State and County Societies have sustained.

As Secretary of the Medical Society of the State of New York, Dr. Townsend came in personal touch with the various County societies. As the largest County Society in the State outside of the Metropolis, Erie County Society felt his influence.

At a special meeting of the Council of the Medical Society of the County of Erie held March 13, 1916, the Secretary was directed to send a message of sympathy to the bereaved family, and Dr. Grover W. Wende, ex-President of the Medical Society of the County of Erie, and also ex-President of the Medical Society of the State of New York, was delegated to represent Erie County at the funeral.

FRANKLIN C. GRAM,
Secretary.

BRONX COUNTY MEDICAL SOCIETY.

At the regular meeting, March 15, 1916, the following resolutions were unanimously adopted:

The Bronx County Medical Society has learned with the most profound shock and regret of the sudden and tragic death of Dr. Wisner Robinson Townsend, for many years the faithful Secretary of the Medical Society of the State of New York.

In the death of Dr. Townsend the Bronx County Medical Society, in common with all other County Societies of the State, loses a friend, but we in particular were under the deepest obligation to him for the active part and the deep interest he took in the organization of the Bronx County Medical Society.

Every member of the Medical Society of the State of New York was aware of Dr. Townsend's untiring efforts in behalf of the Society, to which he gave so freely and so unselfishly of his time, energy and organizing ability. But only those who had the privilege of personal friendship or acquaintance with the man knew how willingly and ungrudgingly he sacrificed his own personal interests in its behalf.

The death of Dr. Townsend removes from the medical profession of the State of New York not only one of its best friends and most devoted workers—a man untiring in his zeal for his fellow-practitioners—but a surgeon of high rank for his professional attainments and a man of extraordinary charm in his social relations with all with whom he came in contact.

The Bronx County Medical Society feels deeply his untimely taking off and mourns not only the loss of the faithful and devoted medical worker but that of a personal friend. He was deeply interested in the progress of our own Society, and rejoiced in its success. We shall miss him keenly. Be it therefore

Resolved, That the Bronx County Medical Society express to his sorely bereaved family our profound regret for the early term set to a life still so full of possibilities for service, and our deep sense of the loss sustained;

And Be It Further Resolved, That these resolutions be spread upon the minutes of the Society and that a copy be transmitted to the Medical Society of the State of New York and to the family of Dr. Townsend.

JOHN E. VIRDEN, *President.*
HERMAN T. RADIN, *Secretary.*

THE NEW YORK ACADEMY OF MEDICINE.

At a meeting of The New York Academy of Medicine held March 16, 1916, the following resolution was unanimously adopted.

Within a few days, by the death of Dr. Wisner R. Townsend, the Academy of Medicine has lost one who for ten or twelve years has devoted a large part of his time and strength to its service, and whose usefulness it is impossible to overestimate. As a member of the Board of Trustees and Council and as secretary of the former body, he took upon his shoulders a large part of the burden of the practical administration of the institution. Scarcely a day passed when he failed to report here to attend to any business that might arise, he being a member of the house committee. His wise judgment, his cheerfulness and unfailing tact made him always beloved by his fellows upon the board.

Few men have devoted more time and labor to the welfare of the profession, while his sympathy with its younger members and his kindnesses to them gained for him their warm affection.

The New York Academy of Medicine, mindful of his great services to it and mindful of his high character as a man and physician, hereby records the senses of loss and conveys to Dr. Townsend's family its sincere sympathy in their sorrow.

Resolved, that this resolution be spread upon the minutes of this meeting and that a copy be forwarded to Dr. Townsend's family.

FREDERICK T. VAN BEUREN, JR.,
Secretary.

Deaths

NATHAN G. BOZEMAN, M.D., New York, City, died March 17, 1916.

ANDREW JACKSON BUTLER, M.D., Unadilla, died March 4, 1916.

MILTON ALMOND CURTISS, M.D., Kirkville, died February 29, 1916.

GEORGE HUNTINGTON, M.D., Cairo, died March 3, 1916.

GUSTAV LANGMANN, M.D., New York City, died March 27, 1916.

JAMES E. MEDDEN, M.D., Seneca Falls, died February 11, 1916.

IRVING O. NELLIS, M.D., Utica, died March 8, 1916.

WISNER ROBINSON TOWNSEND, M.D., New York City, died March 12, 1916.

ALFRED M. YOUNG, M.D., Salem, died February 16, 1916.

NEW YORK STATE JOURNAL OF MEDICINE

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ORATION ON MEDICINE

WILL THE PRIVATE PRACTITIONER DETERMINE THE FUTURE OF PUBLIC HEALTH WORK?*

By HAVEN EMERSON, M.D.,
NEW YORK CITY.

Fellow Practitioners and Fellow Members of the Army of Sanitation:

THE very reason for your chosen guest's absence today, the wholly admirable excuse for Prof. Strong's inability to fulfill his engagement to address you, gives special point to the subject which I offer for your consideration.

Prof. Strong has gone to make available for all and sundry sufferers from violence and disease among the combatants in France, the services which the practitioners of medicine and surgery are offering daily throughout this State as individuals.

The circumstances clamored for organization and the forces trained in individualism and disciplined in the isolation of general practice have been welded into units of effective association.

Co-operation for a common end is replacing competition for personal gains.

President Hadley of Yale unwittingly described the history of medicine in these words:

"The human struggle for existence is not a struggle between individuals. It is a struggle between groups, in which the morals of the group count for more than the physical characteristics of the individual members. Looking back over the record of human history we see that the savage was gradually crowded out by the civilized man because the civilized man had developed discipline, sympathy, toleration, because he had learned to substitute reverence for superstition, true fortitude for mere animal courage, because he had accustomed himself to keep his temper and to put the law above personal interests and to live in charity with a larger and larger section of mankind."

Self-restraint, respect for law, and charity to mankind; could there be a truer slogan for the modern crusader?

The accident of opportunity has put me at a desk where two currents of correspondence, two floods of complaint and comment meet. The citizens of New York City send 46,267 complaints a year, requests for help, appeals for relief, searching criticism of the action of their servants in the Department of Health. These fall roughly into: the complaints of the layman that he is neglected and unprotected against his fellow citizen, and the protests of the practitioner of medicine that his privacy is invaded and his living stolen from him.

It is my plan and hope to show you that the causes for both complaints may be abated by personal effort among ourselves, without recourse to recrimination or to the legislature.

It is my belief that the practitioner of medicine, as an individual and through his scientific and socio-professional organizations can direct the development of future public health activities to the very great benefit of the community and a coincident improvement in his own status, professional, social and economic.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 16, 1916.

It may be accepted as axiomatic that public health work can progress only so far and so fast as the family physician is ready to go. If he had disapproved of the use of diagnostic throat cultures, diphtheria could not have been reduced. When he found the examination of sputum and the Widal test of value to his patient, he acknowledged the right of the state to inquire as to the identity, residence, occupation, etc., of his patient for the community's sake.

If the practitioner of medicine had not been heart and soul in the attack upon excessive infant mortality, the appeals of the public agent would have fallen on deaf ears. The community would have discounted the educational propaganda of health departments if the family doctor had not agreed in and supported the campaign.

The facilities created at the request of the public are made available for the practitioner so that the community may obtain quicker and where possible more accurate diagnosis and reliable specific prevention and treatment.

The laity no longer objects to, but welcomes, the visit of the public agent of health, the physician, and the nurse to school, to home and to factory. The protests are not of officious interference and intrusion but against insufficient inspection and protection.

The factory hand learns from a circular or placard in the shop that since he works in finishing automobile bodies, he is entitled to the use of hot water and soap to save himself from the hazard of lead poisoning. He demands assistance from the Health Department to obtain his rights.

The Jewish boy, working on Sunday in a garment shop, reports the water supply shut off all day to the inconvenience of a room full of sweating operatives. No water to drink, none to operate the lavatories, none for fire protection. He knows his rights and asks for assistance to obtain them.

The working girl demands prosecution of a seller of hair dyes because a disfiguring eruption on her face and neck has followed the use of a common aniline color restorer.

The physician resents the removal of his typhoid or tuberculous patient from the dark unventilated old-law tenement by order of the Board of Health. He loses his fee for personal services that the exposed members of the crowded tenement may be spared the risk of massive contact infection.

The child referred from school with a card from the school medical examiner, advising treatment for enlarged tonsils, the deep crypts of which were found sodden with oozing pus, returns with a scornful note from the family physician who says his patient is under treatment by drops internally and ointment externally.

How furious is the physician who resents a query as to whether he used auscultation and percussion of lungs, and examined sputum, when he reports cooks and waiters free from tuberculosis, who were recorded as active cases but recently.

How reconcile these opposing standards? How meet the reasonable demand that the licensed practitioner be allowed to use his own judgment in care, environment and treatment of his patients without interference from the health officer, except by teaching that the obvious rights of a community are superior to the personal profits of the private practitioner, or to the personal choice or even liberty of the sick patient. Smallpox segregation is accepted by profession and public. If segregation of typhoid and tuberculous patients is necessary to accomplish as great a degree of relief from a community infection, both the public and the profession will make the necessary sacrifices.

How meet the plaint of the helpless alien factory hand, the appeal of the machine operator who sees a procession of permanently damaged fellow workmen pass from the shop to hospital or almshouse, except by encouraging and demanding a removal of industrial hazards, in spite of the added cost of operating, and the increased price of the product to the consumer.

The purchaser of the felt hat can better bear a rise in price than the community of factory hands suffer the mercury and dust hazards incident to the carrotting of fur strippings.

If the brewer saves a dollar by using methyl alcohol varnish in his vats, does that offset the cost of maintaining the blinded laborer who was hired for a day's work, or support the widow of his comrade who suffered death instead of blindness?

The community must be protected against individual dangers, whether they be in the sick room or in the factory, and if this protection involves loss of professional fee or diminished profit in sales, the burden is justified by results.

The opportunities for protection, for prevention, and for education are abundant; they can be met by so organizing the available forces as to spread control and information in every home and workshop.

Since its inception fifty years ago, the Board of Health of the City of New York has had the benefit of an Advisory Medical Board, and in these years there have been in this informal relation to the Department the great clinicians, sanitarians and scientists who have honored their profession and the city by their contributions to the principles and practice of preventive medicine.

No important step has been taken without the approval of this group and in times of emergency they have played a leading part in directing the policies of the Board of Health. I need mention only such names as Bryant, the elder Janeway, Kinnicutt, Polk, Prudden, Jacobi, Brannan, McCorkle, Flexner and Holt, to indicate the type of former and present members of this professional group.

As the applications of preventive medicine have broadened and specialism has crept into the administrative side of Health Department work, as it has so profoundly altered the practitioner's relation to medicine, the need arose of a larger group assisting the various bureaus of the Department and playing the same part in studying and guiding their special problems, as has been played by the Medical Advisory Board.

So, in 1914, Dr. Goldwater called for the assistance of an Advisory Council, which now numbers 240 members. Of these, 72 are physicians, each one a representative of some special professional group, an expert in a field in which the Department has interests and where the public need will be best met by expert advice and support. The other members are drawn either from social groups whose major interests and whose occupations touch official medicine at many points, such as nurses, social workers, administrators of charities, etc., or from the industries which operate largely under the control of the Department of Health, such as the milk, oyster, food, chemical and drug trades. There are enlisted also, members of the technical engineering professions whose knowledge of sanitation is an invaluable aid to the purely medically trained man.

During the past two years several hundred separate problems have been referred to the groups of the Advisory Council, and of these more than fifty subjects involving technical medical matters have been taken under advisement and studied by the medical members serving particularly the Bureaus of Preventable Disease and Child Hygiene. The opinions rendered have saved the Department from mistakes and have resulted in many instances in important modifications and innovations in procedure.

In addition to the help and direction to the activities of the Health Department, provided by the Advisory Council, important contributions to the health interests of the state and city have been made by the active and effective Committee on Public Health of the New York Academy of Medicine, and within the last few years also by the Committee on Public Health of the County Societies of New York and Kings.

The health officer so bold or with such an encyclopedic mind as to ignore the advantages of these professional contributors, must be prepared for more opposition and criticism than has already fallen to the lot of even the recent appointees.

Thus I may give my first answer to the inquiry of the title. The practitioner of medicine is directing the present policies of public health work.

In August, 1915, notice was given that handlers of food, employed in the kitchens and dining-rooms of hotels and restaurants must be examined to discover the presence of infectious diseases in communicable form. It was fully explained that the particular object of the examination was to discover cases of typhoid carriers, active cases of pulmonary tuberculosis and syphilis and gonorrhea in the active stages. It was recognized that this certification of the health of food handlers was for the protection of the public, and only secondarily to insure diagnosis and treatment of individual cases of disease. The food handler or his employer might therefore be expected to bear the cost of this examination as the taxi chauffeur pays for his license.

Food handlers were offered the privilege of having the examinations made at their own convenience by a physician of their own selection. The Department of Health required that the physician should make his report and declaration upon an official card supplied him for this purpose, and give supplementary laboratory diagnostic proof of the absence of communicable disease in any case where requested by the Department. The Department has since the inception of this work maintained a corps of men and women physicians to examine those who were too poor to obtain private services, and to inquire into the industrial conditions under which this small army of 90,000 cooks and waiters work in New York City.

Eleven hundred and sixteen private physicians have participated in the examinations of food handlers under authorization of the Department of Health, and they have made and reported to the Department upon 26,300 examinations. During this period, twenty Department physicians have examined 20,357. The diagnostic facilities of the Department laboratories were available to the private as well as for the Department examiners. The results are as follows:

The 1116 private physicians discovered:
  1 case of pulmonary tuberculosis,
  7 cases of syphilis,
  5 cases of gonorrhea, 4 of these were reported by the examining physician of the Pennsylvania R. R.,
  0 cases of typhoid carriers,
among 26,300.

The twenty physicians of the Department of Health discovered:
  20 cases of tuberculosis,
  111 cases of syphilis,
  22 cases of gonorrhea,
  6 cases of typhoid carriers.

If the same rate of incidence had prevailed among the food handlers examined by physicians in their own employ as was found among their fellow workers examined by the Department of Health, there would have been approximately:

26 instead of 1 case of tuberculosis reported,
143 instead of 7 cases of syphilis reported,
26 instead of 5 cases of gonorrhea reported,
7 instead of 0 cases of typhoid reported.

There is much food for thought in these results. The clinical material under observation was as nearly uniform in the two groups as can well be imagined. The examining physicians of both groups were, in the main, graduates of the medical schools of New York City.

In the case of the private practitioner there was the opportunity of a new and considerable source of income, and remuneration in fair proportion for the time consumed, and there was the same responsibility to detect disease as is assumed when a patient calls at a physician's office frankly complaining of disease. The food handlers considered themselves healthy when applying for examination.

The Department physicians drawn from the same professional ranks, working on a salary, were responsible for a methodical performance of a set task under the supervision of trained diagnosticians.

The query is inevitable: Are private practitioners in the by and large ready to detect disease in people who assert that they are healthy? Is the public sufficiently protected at present, if the symptoms of disease must be declared by the patient before it is named and treated by the physician?

It takes undoubtedly a higher grade of diagnostic skill, a keener searching for delicate variations from normal in structure and function to detect the incipient or masked or carrier stages of most infectious diseases than to make a correct diagnosis when fever, pain, and disability call attention to a lesion well established.

What the Health Department should do in the face of the figures reported, need not concern us here. What the medical profession will do in order that universal annual physical examination may become a public habit is of great moment to us now.

The public is ready to believe that much of its suffering, most of its preventable disease can be avoided if medical services are called for in time.

Examinations for prevention are understood by even the poorest of our citizens as the records of our tuberculosis dispensaries attest. Fifteen per cent of all the cases calling for examination do so to assure themselves that they have not been infected, though exposed. Thirty per cent of all those examined are found to be no cases of tuberculosis.

Such a record as the 1,116 physicians made, is not creditable to their diagnostic skill. Many examinations were declined because the reports showed upon their face the absurdity of any claims to reasonable accuracy. In one case, a physician reported 84 physical examinations as the result of one afternoon's work.

The public has made great studies in its interest in self-protection. Will the general practitioner seize the field of preventive medicine awaiting him, or will the community require that its own public physicians take charge of this phase of medical practice?

The profession can and will make this phase of state medical services unnecessary if it puts as much enthusiasm into keeping well people well, as it does into repairing damaged bodies by surgery and drugs.

In September, 1915, the following letter was put in the hands of each of the children admitted to the public schools in New York City, who had not previously been examined:

"For the past six years the school doctors employed by the Board of Health have made a physical examination of every child entering school for the first time, and have made further physical examinations of each child on an average of three times during its school life.

"The (first, second or third) examination of your child is now due.

"In order that parents may, if they choose, have an opportunity of having these examinations made by their own physicians or physicians of their choice, the Sanitary Code now provides that each child applying for admission to a public school must submit 'A Health certificate prepared in accordance with the regulations of the Department of Health, and signed by a duly licensed physician authorized to practice medicine in the State of New York.' A form of physical-record card is herewith enclosed, for that purpose. THIS CARD MUST BE FILLED OUT BY THE PHYSICIAN AND REURNED TO THE SCHOOL.

"If the card is not returned within ten days, it will be assumed that you wish the school doctor to examine your child and this will be done, as has been the custom.

"The general form of treatment must be stated on this card; that is, either medical or surgical. No details of treatment need be given."

The parents of 18,360 (or 16 per cent) of the unexamined children availed themselves of this privilege of private examinations.

The examinations by private physicians in Brooklyn and The Bronx represented 21 per cent, in Manhattan 13 per cent, and in Queens and Richmond 4 per cent of the possible number of children whose parents might have availed themselves of this new procedure.

Physicians not accustomed to use and keep card records failed to note the treatment advised and instituted for the defects discovered in 28 per cent of the cases. Fourteen thousand six hundred and seventy-two defects were recorded by these private examiners.

The following tables are worthy of some study:

TABLE I.

DETAIL OF RECORD CARDS EXAMINED.

	Treatment Instituted			*Card*	
	Medical	*Surgical*	*Other*	*Not Complete*	*Total*
Defective Vision	324	25	68	203	620
Defective Hearing....	69	17	6	59	151
Defective Teeth.......	3,510	170	597	1,204	5,481
Defective Nasal Breath	631	550	19	696	1,896
Hyp. Tonsils..........	1,171	1,004	42	1,162	3,379
Defective Nutrition...	1,147	22	95	418	1,682
Cardiac Defects.......	230	1	13	74	318
Pulmonary Defects...	151	24	29	53	257
Orthopedic Defects...	80	38	56	77	251
Nervous Defects......	465	2	25	145	637
Total	7,771	1,853	950	4,097	14,672
Per Cent		71.4		28.6	

The percentage of defects found in school children by different groups of examiners is shown in Table II. It is noted upon study of the table that the school medical inspectors examining a very large number of children under all kinds of conditions find practically the same percentage of children suffering from each defect in 1914 as in 1915. Such figures can, therefore, be considered a fair city average.

TABLE II.

PERCENTAGE OF PHYSICAL DEFECTS IN SCHOOL CHILDREN.

(Comparing results of examinations by different groups of examiners.)

	Private Physicians	*School Medical Inspectors*	
	16,203 *ex.*	1914 308,595 *ex.*	1915 278,174 *ex.*
Defective Vision........	3.8	8.9	8.9
Defective Hearing	.93	.61	.69
Defective Teeth.........	33.8	60.78	64.67
Defective Nasal Breath..	11.7	9.35	10.0
Hyp. Tonsils............	20.8	11.72	11.6
Defective Nutrition.....	10.3	5.24	6.3
Cardiac Defects.........	1.9	1.28	1.5
Pulmonary Defects......	1.5	.19	.26
Orthopedic Defects......	1.5	.60	.72
Nervous Defects........	3.9	.63	.65

To supplement Table II, the following table is introduced to show the findings by the private physicians and by the school medical inspectors in schools in the same borough and in examining new admissions to schools, that is, in examining children as nearly as possible of the same age and under the same conditions.

Five thousand nine hundred and forty cases examined by the private physicians and 5,780 cases examined by the school medical inspectors were taken, therefore, for purposes of comparison.

TABLE III.

PERCENTAGE OF DEFECTS FOUND IN NEW ADMISSIONS TO SCHOOL, MANHATTAN.

	School Medical Inspection, 5,780 *Examinations*	*Private Physicians' Examinations,* 5,940 *Examinations*
Defective Vision	7.0	4.0
Defective Hearing	.38	.77
Defective Teeth	71.2	36.5
Defective Nasal Breath	12.3	12.2
Hyp. Tonsils	13.1	21.8
Malnutrition	6.3	13.9
Cardiac Disease	1.1	2.1
Pulmonary Disease	.81	1.9
Orthopedic Defects	1.1	1.7
Nervous Diseases	.91	3.9

A study of this table shows that the school medical inspectors find a somewhat greater percentage of defective vision. This is probably because all the inspectors are supplied with Snellen test cards and because valuable information is given very frequently by the class teachers.

The private physicians found 400 per cent more children with nervous diseases than the school medical inspectors. The school medical inspectors found 190 per cent more cases with defective teeth than the private physicians. The private physicians found 170 per cent more children with hypertrophied tonsils than the school medical inspectors.

The cost of the examinations made by the family physicians, if estimated at $1.00 a patient, was $9,000 more than the cost would have been to the community if all these examinations had been made by the school medical inspectors. This does not consider the treatment which in either case would be provided by family physicians or public dispensary.

The advantages in having the family look to their own physician to make periodic examinations of the children of school age, are too apparent to need further comment. The family should feel its responsibility to the child and its schoolmates, to the extent of having it examined and its physical defects remedied. The physician who has attended at the birth, has seen the first vaccination, has followed the child through its ailments up to school age, is exactly the one who should certify to the child's condition and report on any defects which may develop during school life.

The future of public health work among school children will depend largely upon the attitude of the family physician to this opportunity to resume practically exclusive control over the health of his patients.

In February, 1916, the following letter was addressed to a group of twenty-five physicians in the Borough of Queens, where it was planned to extend the principle of health districts to the administration of all activities of the Department of Health in this borough:

"Dear Doctor:

"The Department of Health has under considation the appointment of an auxiliary group of physicians, to be associated with it in its public health work, and to be known as Associates in Public Health. Only representative physicians whose training, reputation and experience recommend them for this service, will be invited to become members of this Association.

"It is intended that those who are willing to accept this responsibility in the spirit in which it is offered, and are willing to so co-operate with the Department in its efforts to prevent the occurrence and dissemination of infectious diseases, shall entirely control such cases. No supervisory inspections will be made and the entire conduct of quarantine as well as its termination will be entrusted to them.

"It is believed that this innovation will be welcomed by those physicians so selected not only as an honorary distinction, which it is intended to be, but also as an evidence of the established policy of the Department to encroach as little as possible upon the privileges of the medical profession, and a desire to admit those in whom it may repose confidence, to a large share in its preventive and constructive activities in the interest of public health.

"As a first step, those physicians practicing in Queens Borough who, by their reports to the Department, are known to have in their care many patients ill of infectious diseases, will be invited to initiate this new procedure.

"If you are willing to participate in this, and to attend a conference to be held in Jamaica in the near future, please notify me at your earliest convenience."

On May 1st, the new organization took charge, and the four districts in Queens constitute separate health departments controlled by a central staff officer at headquarters. Each local health officer has approximately 125,000 people in his district and each of the Bureaus of the Department of Health has representatives working as members of his field and office force.

The Associate Physicians in Public Health will, we believe, form an important bond between the agents of the Health Department and the public.

Each physician whose interested co-operation to prevent disease is enlisted, postpones increase of public service to the same end and places the private practitioner, where he belongs by right, in the position of teacher, guardian, and protector of the healthy as well as a healer of the sick. I look forward with confidence to the result of this union between public officer and family physician. In this way also can the medical profession direct the future of public health work.

Let me suggest that each section of this State Society maintain a special standing committee to discover ways and means of preventing the diseases in their special province and obtaining co-operation and assistance from their local and the state health officer. There is no specialty in medicine and surgery which does not offer unexplored opportunities in prevention. The internist and the pediatrist, the ophthalmologist and the obstetrician have made abundant contributions to prevention of disease, have been generous of their time and energy in diminishing sickness and death.

Each specialty has its shining examples; the surgeons in the prevention of cancer, the dermatologist and genito-urinary specialist in the field of venereal diseases; but in most professional communities they are voices crying in the wilderness.

How many operating surgeons record their cases as preventable or unavoidable? How often do physicians go to the shop or factory and seek to prevent a recurrence of the industrial disease their patient exhibits?

How many of those who treat syphilis and gonorrhea use the opportunities thus offered to prevent and protect, serve as teachers, agents of prevention for health's sake and to raise social standards?

How many search their pharmacopoea for a rational dose for a particular purpose, instead of using the manufacturers' extracts of quackery or tincture of fraud, because the label promises relief from all symptoms of disease?

How many think and speak of alcohol as the most habit-forming of all drugs, a depressant, a public menace, and think twice before giving gin to the dysmenorrheic, or advising whiskey and water for the convalescent youth, or ale and porter to the nursing mother?

In closing, I would say that the field of opportunity for the highest type of medical service, the keenest diagnostic skill is being constantly enlarged by the inevitable and desirable broadening of public health administration.

Preventable disease is being prevented, avoidable death are being postponed, particularly at ages under forty.

The physician who waits for the typhoid which used to flourish and mourns the good old times when he could rely upon a living in summer from diarrhoeas of infants, and in winter from the devastating epidemics of diphtheria and scarlet fever must see the writing on the wall, and reach out for practice among people who expect a physician to protect them as individuals in the way the community is protected by public health officials, by studying how the well may be taught to keep well, by hunting for the cause and following his case until he is assured that prevention as well as curative treatment has been applied.

He must familiarize himself with the hazards of occupation and environment, of housing and of habit, and use the Health Department as his own professional research force to solve his personal problems, and to apply the preventive measures for the community's sake as he himself has in the case of his patient.

Health departments can and doubtless will turn over to physicians a larger and larger share of work as fast as the practitioners show their willingness to join in the partnership of prevention.

This most desirable incorporation awaits only the action of the organized medical profession. We are all enlisted in the same army, the army of sanitation, the army for social protection and reconstruction.

Let us heed the warning and follow the advice so clearly stated by Dr. Richard Cabot:

"History shows that medical work and social work are branches split off from a common trunk: the care of people in trouble. In earlier centuries the priest healed the sick, cared for the poor, taught the ignorant, and often led his people in industrial, governmental, and even in martial activities. He was the law giver and magistrate, the doctor, the school teacher, the dispenser of charity, the temporal ruler, and sometimes the leader in war. Such all-inclusive usefulness in the priesthood still lingers here and there among us.

"In a similar way, the country doctor, the old-fashioned family physician, has sometimes extended his profession as widely and deeply as the priest was once allowed to do. Barrie and Watson have described such doctors and many of us have known them leaders in all civic work.

"But specialization of work and division of labor have come into the field once occupied alone by the minister or the doctor. The doctor is now supposed to care for the diseased body, the teacher for the undeveloped mind, the minister for the needy soul, the social worker for the poor, while justice and governmental work are likewise intrusted to specialists. On the whole, doubtless, this division of labor is good for every resulting profession except that of the minister, but what I wish here to point out is that in this field, as in many others, division of labor is never an unmixed blessing and may easily become a curse unless energy and intelligence are devoted to the ways and means of attaining a close co-operation and interchange of ideas, methods, and plans among the divided laborers."

THE TREATMENT OF GENERAL INFECTIONS BY SERA AND VACCINES.*

By ANDREW MAC FARLANE, M.D.,
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THE cry, "back to nature," which has done so much to recreate our bodies and to revivify our minds is strikingly typical of the effort which medical science has been making to understand the methods which nature employs to ward off disease or to overcome it when it has once gained a foothold. These methods have required such brilliant laboratory skill, such analytical powers of deduction and such ability in early diagnosis that in spite of the achievements, the most wonderful in the realm of medical service that have resulted, we have too often brought discredit upon them by our lack of technical skill, our ignorance of the fundamental problems underlying nature's ways and our treatment based upon an incomplete if not an incorrect diagnosis.

The struggle between the invader and the invaded is a miniature but deadly warfare. Success as in human encounters depends on the virulence of the aggressor or upon the preparedness of the attacked. Here there is no place for pacificists, piece-at-any-price plans or unpreparedness.

The parasite attacks by secreting toxic or dissolving substances and protects itself by paralyzing the digestive and expulsive powers of the host. The defender exerts a noxious effort on its aggressor by digesting it or expelling it from its body and adds to its defence by the secretion of anti-bodies. The result of this battle is truly life or death. If the invader is immediately overcome before any destruction ensues, i. e., clinical symptoms of disease, then the organism is said to be immune. If a long struggle follows, i. e., disease with the varying fortunes of war—symptomatology—but with final victory to the host, then the organism has recovered or, to use a literal synonym, has made good again.

Thus immunity and recovery are simply degrees in the same process, depending upon the virulence of the invader and the resistance of the invaded. The methods of defense and recovery from infection have been ingeniously explained by theories proposed by Metchnikoff from the Pasteur Laboratory and later amplified by Wright, i. e., a Franco-Russian and British combination, by Ehrlich, i. e., the German, and by Vaughan, the American. They have been called the phagocytic or cellular theory, the humoral or side chain hypothesis, and the explanation by division of the proteins.

In considering the treatment of acute infections, it seems more logical to proceed historically from the known to the unknown, from the basis of fact to the realm of fancy, from what we all believe and accept to what is still the subject of dispute and uncertainty.

The Chinese, centuries ago, employed inoculation for the treatment if smallpox and this method traveled westward to Constantinople, where its efficacy was recognized by Lady Montague. In 1718 she advocated, in London, treatment by attenuated vaccine (i. e., from mild cases) for the prevention of virulent smallpox. This was thus indirectly responsible for the later discovery of Jenner, who in 1796 introduced the use of the harmless cow vaccine for the attenuated but at times fatal human virus. No further advance was made along this line until 1902, when Pasteur advocated the use of attenuated living cultures in the treatment of anthrax and rabies, the mortality of which was thereby reduced to less than one per cent.

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* Read at the Annual Meeting of the Fifth District Branch of the Medical Society of the State of New York, at Little Falls, October 6, 1915, as part of a Symposium on General Infections.

Then Koch, in 1890, before the International Medical Congress in Berlin stated the apparent subsidence of tuberculosis in laboratory animals by inoculations with attenuated tubercle bacilli. He expressed the hope that this great scourge of the human race might be controlled in a similar way. It was quickly found, however, either due to mistakes, the result of our excessive enthusiasm, or our natural desire for immediate results, that inoculations were used which at times resulted in disastrous reactions and liberated bacilli from more or less latent foci, resulting in the further spread of the infection and the fatal extension of the disease. The history of the tuberculin treatment is a pathetic recital of bitter disappointment due to our overenthusiasm, and also a disgraceful narrative of the worst kind of fraud by the much vaunted specifics of quacks and charlatans, some of whom unfortunately have been members of our profession. It has taught, however, the lesson that in carefully selected cases, with discriminating and extensive knowledge on the part of the physician, this method of treatment may be employed with favorable, but not marvellous results.

Roux and Yersin, in 1889, found that there was a toxin produced in diphtheria, and Behring took advantage of this, and the discovery that the organism developed in its defense an antitoxin which neutralized the toxin much in the same way as an alkali neutralizes an acid. This antitoxic power was developed to a high degree of potency in the blood of horses and thus obtained, was used in the neutralization of the toxins of diphtheria in the human. In a similar way the antitoxin of tetanus has been produced. These sera overcome only toxins free in the circulation, and do not prevent the further activity of the bacteria in producing toxins nor influence to any extent the injured tissues.

This is the reason for the early use of sufficient antitoxin to neutralize at once the toxins before they do injury which is irreparable. The first symptoms of diphtheria are usually sufficiently alarming and outspoken to demand early and energetic treatment with its resulting success.

In tetanus, however, the toxin is absorbed into the nervous system days before any clinical evidence of the disease is apparent, combines with the nerve cells for which it has a predilection and is therefore difficult of neutralization even when intra-spinous injections are administered. The results are therefore much less satisfactory. The antitoxin is just as powerful but the conditions are different than in diphtheria. On the other hand, the immediate prophylactic use of tetanus antitoxin in injuries before the toxin has had time to develop to any extent, is an ideal treatment and is said to have been without a failure in this country. The paralyses, which at times occur in diphtheria, probably develop in a similar way, i. e., the invasion of the nerve cells before sufficient antitoxin was used.

In contradistinction to the group of diseases just mentioned, diphtheria and tetanus, in which the pathogenicity is manifested by definite, diffusible and soluble toxins, there is another group which, though toxic in character, do not produce determinable toxins in the same appreciable quantity. They excite disease processes in some complicated and as yet not fully explainable way. The streptococcus infections, pneumonia, meningitis and gonorrhea are types of this class. For these an attempt has been made to produce a curative antibacterial serum. No method has been evclved, however, in the laboratory by which antibacterial serum can be developed to a strength at all comparable with the antitoxin of diphtheria.

This great group of infections, due to many varieties of the streptococcus and related cocci—the pneumococcus, the meningococcus and the gonococcus, is now the subject of extensive and intensive study in many laboratories.

The hitherto unsuccessful use of serum in pneumonia is indicative of the difficulty inherent in serum therapy, i. e., the determination of an accurate ætiological diagnosis. At first antipneumococcus serum was administered indiscriminately in every case of pneumonia without any effort being made to determine the specific nature of the infection, although it was well known that typical pneumonia might occasionally be due to organisms other than the pneumococcus—the streptococcus and the influenza bacillus. Antipneumococcus serum is not, however, curative in a pathological process due to any other organism than the pneumococcus. Neufeld then found that an antipneumococcus serum was not even effective in the treatment of all typical pneumococci pneumonias. Cole and Dochez, of the Rockefeller Institute Hospital, explained this anomaly when they were able to recognize four distinct types of pneumococcus, and found that an immune serum produced by one group is specific for that group alone and not for the others.

There have been no constant cultural or morphologic differences discovered in these groups but their differentiation has been made possible by agglutination reactions as well as by protection experiments.

In a series of 150 cases it was found that 38 per cent were in the first group, 30 per cent in the second, 11 per cent in the third, and 21 per cent in the fourth. The mortality of the first group was 25 per cent; of the second group, 36 per cent; of the third group, 47 per cent, and of the fourth, 7 per cent.

The success of the treatment proposed by Cole and Dochez depends upon the accuracy of the bacterial type diagnosis at the earliest possible moment and then followed immediately by intravenous injections of the specific serum.

This kind of scientific clinical work has only been possible up to the present time in a hospital thoroughly equipped as is that of the Rockefeller Institute. I am permitted to state, however, that our very efficient State Board of Health is about to inaugurate a campaign along this line against pneumonia in selected hospitals of the State and I believe the time is not distant when this dread scourge of adult life, as diphtheria was of infant life, will be very materially reduced in mortality.

The work of Rosenow upon pneumonia presents interesting problems. He claims that different morbid processes are the result of transmutation of types of the streptococcus. He states not only that pneumococci of different types may be transformed one into the other, but that also pneumococci may become streptococci and vice versa. These claims are at first startling, but they offer much that is worthy of consideration and extended investigation.

In epidemic cerebro-spinal meningitis Jockmann, of Breslau, in May, 1905, undertook experimental studies on a specific immune serum and in April, 1906, reported the results in 38 cases of epidemic meningitis. At first he employed the subcutaneous route and later with safety the intraspinous. His mortality was 27 per cent, as against that of 53 per cent in untreated cases. Kolle and Wassermann about the same time reported their preparation of an antimeningitis serum and favorable results from this serum were published in 1907 and 1908.

Flexner, at the Rockefeller Institute, began his work a little after Jockmann's, in 1905, and in 1906 reported his production of a specific immune antimeningitic serum. This serum was first used in May, 1907, during an epidemic in Akron, Ohio. The serum produced striking results. There was a mortality of only 25 per cent, as against a previous mortality of 90 per cent. In a later report based upon 1,300 cases, there was a mortality of 30 per cent. Of 125 infants under one year of age, in whom the disease is almost always fatal, there was a mortality of only 50 per cent.

Sophian, in the 1912 Texas epidemic, advised the more extensive use of this serum as a prophylactic measure. Many physicians and nurses, as well as a considerable number of others in contact with the sick, were injected, and in only one case did meningitis develop among those inoculated, and that six weeks after treatment.

The serum and vaccine treatment of general infections, except in the type associated with malignant endocarditis, seems to be of sufficient benefit to justify further use. The number of strains of the streptococcus is such that the commercial polyvalent serum has had to be employed with the resulting uncertainty in its effect.

This condition presents a striking analogy to the pneumococcic infections. It is probable that the future will reveal the definite type of streptococcus involved just as Cole and Dochez have recognized the types of the pneumococcus and that an efficient specific serum will be produced for each definite type of streptococcus infection with correspondingly favorable results.

The practically absolute protection furnished by vaccination against smallpox has been a constant stimulus to similar efforts directed against other diseases. These efforts have resulted in the production of so-called vaccines which are killed cultures of specific organism and are employed for the prevention or cure of the respective disease.

The marvellous success attained by the use of typhoid vaccines in the prevention of typhoid fever has robbed war of half its terrors and has given us an effective means of strangling in its incipiency an outbreak of typhoid in any community. The value of typhoid vaccines in the treatment of typhoid is still subjudice. Theoretically it would seem as if when used early, they might intensify the clinical symptoms and cut short the disease by inducing an earlier and more intense reaction. The reports upon its use have been favorable if not brilliant. They would seem to indicate that they tend to lessen complications and prevent relapses.

Recently Ichikawa has reported very striking results from intravenous injections of sensitized bacteria.

Two types of vaccines are in use: the heterogeneous or stock vaccine and the autogenous

The stock vaccines are prepared from infections similar to the disease of the patient and are usually polyvalent, i. e., consist of several strains of the same organism.

The autogenous vaccines are produced from cultures obtained from the patient himself. They are specifically the organism from the effects of which the patient is suffering and against which you are seeking to increase the resistance of the patient.

Their use necessitates a bacteriological diagnosis of the case and therefore a more complete understanding of the nature of the morbid process. Vaccines stimulate the production of antibodies and may do harm when the organism, as in acute conditions, cannot respond to the stimulus. The result is an addition to the poison already present in the body.

The very fact that stock vaccines are polyvalent indicates their uncertainty against specific organisms. It is probable that the use of stock vaccines has resulted in carelessness of diagnosis and misinterpretation of the probable nature of the infection with the possible direct injury to the patient. The claim that laboratories are not available for the rapid production of autogenous vaccines should no longer be true in this state. The establishment of county laboratories places at the easy disposal of every physician the scientific skill and technique necessary for this work.

This whole subject is unfortunately still another proof of how easily the medical profession is flim-flammed by the manufacturers with their extravagant claims for their so-called specific products.

Time and your patience will not permit me to dwell much longer upon this subject, so pregnant in interest and so fascinating in its possibilities. I need only mention the successful results from vaccine therapy in local affections as furunculosis, carbuncles, abscesses and acne and in the complications associated with gonorrhea. The vaccine treatment of whooping cough and hay fever indicate the possibilities in the further extension of this method of treatment.

In conclusion: Although the treatment by sera and vaccines point the way for the future advance and development of nature's therapeutics, it must be recognized that there is much in it which is purely hypothetical and still more that is obscure and unknown. Let us avoid a repetition of the pathetic errors of the past and especially the pitfalls of commercialism. It is a powerful but two edged sword and care must be taken lest irreparable harm be done to those who entrust their lives to our care. No better advice can be given today than that which has stood the test of twenty centuries. "Prove all things and hold fast to that which is good."

THE MATERIALS WHICH ARE AVAILABLE FOR THYROID FEEDING AND THEIR THERAPEUTIC USES.* †

By JOHN ROGERS, M.D.
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THE material usually employed for thyroid feeding consists of the dessicated entire sheep's gland. This according to the *U. S. Pharmacopeia IX* should contain not less than 0.17 per cent nor more than 0.213 per cent of iodin in "thyroid combination." The thyroid glands of domestic animals show seasonal and also pathological variations in their iodin content. The maximum quantity is present during the months of June to November inclusive, and a lesser amount during the remainder of the year. The large goitrous glands often found in sheep, have a low iodin content. As many experiments have demonstrated that the effects of thyroid feeding vary more or less in direct proportion to the iodin content of the material, there is need that this should approximate the average normal standard. At its best, however, the commercial thyroid tablet or powder is manifestly a very crude preparation.

During the past ten years the laboratory connected with the Medical Department of the Cornell University Medical College, has been attempting to improve the medicament and the results seem worth publishing.

In the first place there is every reason to believe that the active principle of the gland is soluble in water. Next it seems probable that this substance may be altered or more or less destroyed by autolysis in the usual process of dessication of the thyroid. Therefore we have obtained the glands in as fresh a condition as possible, hashed and suspended and shaken them in physiological salt solution slightly alkaline at room temperature for twenty-four hours and then strained off the coarser particles through gauze. Afterward the opalescent filtrate is warmed to 40° C. and 10 per cent acetic acid added until no further precipitate occurs. Filtration next separates the nucleo-proteins, globulins and some of the coagulable proteins which are dried and the iodin content determined. It is then a simple matter to mix this material with milk sugar and put it up in the usual one grain tablet form containing any desired amount of iodized protein.

By a little clinical experimentation it was found that tablets containing 1, 2, 5 and 10 per cent of the iodized material or approximately 1/100, 1/50, 1/20 and 1/10 grain of these thyroid proteins, which represent the coagulable portion of an aqueous extract, were very potent and seemed more satisfactory in a greater number of cases of thyroid disorders than the common tablets made from the dessicated entire gland.

They were tested first upon the unmistakable cases of hypothyroidism or myxoedema. The ordinary text-book description of this disease leads the student to believe that the disturbance is due to an atrophy of the thyroid gland, that the symptoms are therefore caused by a deficient amount of the organ and that a cure can readily and constantly be obtained by feeding the sheep's thyroid, although occasionally the fresh gland yields better results than the dried material. As a matter of fact only a comparatively few of these patients can thus be even improved. The narration of case histories is probably the best means of demonstrating the peculiarities of thyroid disease and of the available therapeutic resources.

Case I.—(Typical myxoedema illustrating hyperthyroidism after commercial thyroid feeding. Relief only by feeding with thyroid proteins.)

Mrs. C., age fifty-two. Typical myxoedema of ten years duration. Ivory white color. Flush over malar prominences. Puffy eyelids. Hair scanty and gray. Dense oedema of fore-

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[*] Read before the Rockland County Medical Society at Nyack, April, 1915.

[†] The materials described in this article can be obtained by physicians from the laboratory supported by the Johnston Livingston Fund for Experimental Therapeutics, in the Cornell University Medical College, Twenty-eighth Street and First Avenue, New York.

arms and legs. Marked mental and physical asthenia. Pulse, 50 to 60; blood pressure, 80 to 90. No goitre. For the past eight or nine years had been taking one grain tablets of (commercial) thyroid. In spite of this the asthenia and drowsiness has been growing worse of late, and if the amount of the medication is increased there follows breathlessness, tachycardia and nervous irritability with diarrhoea and a worse asthenia than that of the myxoedema. This patient was then given a tablet containing 2 per cent of the iodized thyroid proteins four times daily with marked and immediate relief of all symptoms. The drowsiness disappeared, the pulse rate ran to 76 and the blood pressure to 110 and the strength is greater. Attempts to increase this medication produced signs of hyperthyroidism, though less marked than that following two grains of the commercial thyroid tablet. She was later given small amounts of the liquid thyroid "residue" (described below), but it produced intense headache and lachrymation and only slight improvement of the myxoedema. She is, therefore, still using the 2 per cent tablets of the thyroid proteins. The myxoedema is by no means cured. The symptoms are still evident but bearable. The tablets containing 2 per cent of the thyroid proteins alone are effective and this medication seems only palliative.

Case II.—(Typical myxoedema. Relief only by feeding with the thyroid "residue.")

Miss M., age thirty-five. Typical myxoedema of moderate severity. Five years duration. Ivory white color. Flushed malar prominences. Slight puffiness of eyelids. Perceptible, dense, symmetrically enlarged thyroid. Considerable insomnia and headache. Anorexia. Constipation. Gaseous "indigestion." Mental and physical asthenia. Legs oedematous. Temperature, 97° F.; pulse, 60 to 65; blood pressure, 90; haemoglobin, 90 per cent. Urine negative. One grain (commercial) thyroid tablets almost immediately produced tachycardia, dyspnoea and extreme nervous irritability.

During March, 1915, she was given ten drops of the liquid thyroid residue every four hours with almost immediate relief of the insomnia and indigestion. Tablets containing 5 per cent of the thyroid proteins were then substituted for the thyroid residue, but the indigestion and insomnia returned. The liquid residue then had to be resumed, and in April the symptoms had nearly disappeared, although the goitre still persists. In May it was found that the 5 per cent tablets of thyroid proteins were entirely satisfactory, and they are still necessary. At present there is a rather noticeable pallor and a perceptible asthenia, but no other complaints. The pulse is 76 to 80, the blood pressure, 115, and the temperature, 98.4° F. Attempts at the administration of the ordinary commercial tablets of thyroid always excite evidences of hyperthyroidism and do not relieve the myxoedema.

These two cases illustrate the peculiarities of different thyroid preparations. If the dose of the commercial tablets is increased to the amount which should be required to relieve the symptoms, new symptoms may be added which are worse than the first.

Myxoedema or hypothyroidism was the first of the two extremes of functional thyroid disease to be recognized. Historically that which seemed to be the cause of exophthalmic goitre or hyperthyroidism, namely, over activitiy of the gland, was next perceived and apparently identified by the exaggeration of the symptoms which followed thyroid feeding, and by the relief of symptoms which followed extirpation of more or less of the apparently overactive organ. But thyroid disorders seem to involve a good deal more than a simple increase or decrease of the total amount in the body at any one time of the gland or its secretion. As the knowledge of symptomatology has increased a great number of cases have been encountered which present evidences at the same time of both hypo and hyperthyroidism.

These are conditions which I have come to regard as transition stages in an orderly sequence of events or in the natural progress of thyroid disease. At any rate these seemingly transition stages may or may not require operation. If, however, medical treatment is attempted with the usual kind of thyroid feeding, then hyperthyroid symptoms are generally promptly induced. But by feeding with the combined thyroid proteins many of these irregular or "borderline" cases can be relieved or cured.

Case III.—(Incipient hyperthyroidism, with development and recovery through hypothyroidism.)

Miss F., age nineteen. Poorly nourished young woman who, during 1907 and 1908 had been leading a life of strenuous social activity. In the spring of 1908 she complained of many headaches, some insomnia, constipation and asthenia, and noted an enlargement of the thyroid. In June, 1908, there were frequent attacks of palpitation, and any exertion caused dyspnœa. She was first seen in July. There was marked pallor. The eyes were normal. Slight tremor in the extended fingers. Thyroid soft and symmetrically enlarged to about triple its normal size. Pulse rate, 110 to 115; blood pressure, 110. Complaints of morning headache, weakness, palpitation, constipation and insomnia. A trial of ½ grain commercial thyroid twice daily produced almost immediate aggravation of the palpitation and nervous irritability, and during the succeeding night there was no sleep. A tablet containing 1 per cent of the thyroid proteins was then substituted and there followed a gradual improvement.

In September, 1908, the signs of hyperthyroidism had disappeared, but there were complaints of weakness and constipation and headache, often slight fatigue (hypothyroidism). The goitre was still evident but smaller and softer. A tablet of 2 per cent thyroid proteins was then given every four hours, and a hygienic mode of life advised. In March, 1909, the goitre had disappeared. There were no evidences of any abnormality.

The combined nucleo-proteins, globulins and coagulable proteins with which this case was treated, represent, however, only a portion of the material contained in an aqueous extract of the thyroid. After their removal there remains a clear non-coagulable filtrate which for convenience will be designated as the thyroid "residue." It can be separated into several parts and can be boiled or passed through a Berkefeld filter without apparently altering its properties. Clinically it seems to produce the same results and with the same dosage no matter whether it is given by mouth or hypodermatically.

When injected intravenously in dogs, this thyroid "residue," like many other similar organ extracts, produces in a very small dosage a marked and immediate fall in blood pressure which is accompanied by a deepening of respiration, but by no appreciable acceleration of the heart action. An overwhelming dose will lower the blood pressure almost to the zero point, but will not kill the animal.

Because it seemed non-toxic and did not cause tachycardia this thyroid "residue" was tested upon patients with all kinds of thyroid disturbances at first hypodermatically and later by oral administration. It was soon found to benefit not only many of the mixed types of hypo and hyperthyroidism which failed to gain with the commercial thyroid and with the thyroid proteins but it relieved some of the cases of what clinically appeared to be pure hyperthyroidism.

Experience has proved that not infrequently it "disagrees" by producing a sensation of nervousness and excitement and of a thumping or pounding heart, but it seldom or never produces or increases a pre-existing tachycardia. Hence if the premonitory symptoms of nervousness or palpitation, which occur immediately and soon cease, are heeded and the medication decreased in amount or stopped, there need be no fear of its effects.

The dosage is from three to twenty drops from two to four or five times a day of an aqueous solution containing 2 per cent of iodized thyroid material. Its harmlessness, even in the violent toxæmia of post-operative hyperthyroidism, is attested by the experiences in case V.

CASE IV.—(Post-operative hyperthyroidism and the effects upon the tachycardia of the thyroid residue.)

Miss L., age thirty-five. Typical, rather severe exophthalmic goitre with pronounced nervous irritability and rather rapid loss of flesh and strength. Duration two years. Exophthalmos slight. Goitre small, symmetrical and firm. Pulse, 120 to 140; respirations, 25.

December 20, 1913. Ligation of both inferior thyroid vessels under local 2 per cent novocain anæsthesia. Only slight reaction. Considerable improvement.

December 26. Ligation of both superior vessels under the same local anæsthesia.

December 31. Severe reaction and steadily growing worse. Pulse, 190 to 200; respirations, 40 to 50; blood pressure, 140; temperature, 104 and rising. Constant nausea. No nervous irritability. No wound infection. One cc. thyroid residue containing 2 per cent of iodized protein given subcutaneously. Six hours later pulse, 130 and a good quality; respirations, 25; temperature, 99.

January 1, 1914. After passing the most quiet night since the second operation, the pulse, respirations and temperature began to rise about 5 A. M., and death followed some four hours later, apparently from acute dilatation of the heart. The thyroid residue was not repeated, as I was then very much less familiar with its properties.

CASE V.—(Typical post-operative hyperthyroidism, illustrating the apparent benefits of the thyroid residue.)

Dr. M., age fifty-three. Typical severe exophthalmic goitre of three years duration. Exophthalmos pronounced. Goitre considerable, and larger on the right side. Pulse, 120 to 140; blood pressure, 130; respirations, 24.

January 20, 1914. Both superior vessels ligated. Local anæsthesia. Some improvement. Later this gain ceased. Nervous irritability became extreme.

July 7, 1914. Right inferior thyroid artery tied. Local anæsthesia. Following this slight operation patient was delirious three days, but later gradually improved.

September, 1914. Stationary condition, with typical symptoms and great asthenia.

October 29, 1914. The right and larger thyroid lobe and isthmus removed under local 2 per cent novocain anæsthesia. Difficulties were considerable. "Cigarette" drain.

October 30. Severe reaction. Pulse, 150 to 180; blood pressure, 160; respirations, 40 to 50; temperature, 100 to 101. Much salivation and bronchorrhea, and great nervous irritability. One cc. thyroid residue given every twelve hours intravenously.

October 31. Pulse, 120; respirations, 30; temperature, 99. Flow of mucus from mouth and respiratory tract much less. Nervous irritability decidedly less.

November 1. Continued gain. Evening dose of thyroid residue stopped.

November 2. Worse. Condition as on October 30. One cc. thyroid residue given intravenously every six hours. Almost immediate relief of the dyspnœa and nervous irritability.

November 3. Relief so great recovery seemed assured. Pulse, 120; blood pressure, 140; respirations, 30. Quiet in mind and body. Objects to so many hypodermics, and condition seemed to warrant their suspension.

November 4. About the same. No infection of the wound.

November 5. Awakened at 4 A. M. with difficulty in breathing and profuse flow of mucus from mouth and trachea and larger bronchi. Pulse, 150 to 160; blood pressure, 130; respirations, 60 to 70; temperature, 100. One cc. thyroid residue to be given every four hours, intravenously.

At 1 P. M., after two doses, the symptoms had much improved. Pulse, 130; respirations, 40. Mucus and dyspnœa less.

At 3 P. M., the pulse had not increased in frequency, but was weaker. Dyspnœa evidently worse, and œdema of lungs present. Temperature, 103. Died about midnight, apparently from pulmonary œdema. No autopsy.

Case VI.—(Post-operative recurrence of hyperthyroidism cured by the thyroid residue.) Mrs. W., age thirty-eight. Typical severe post-operative recurrence of hyperthyroidism.

In March, 1905, was subjected to supravaginal hysterectomy for fibroids. At least one ovary preserved. In May showed typical hyperthyroidism with a small symmetrical goitre. No exophthalmos. In December, 1909, was subjected to hemithyroidectomy, and made, after six months, a complete recovery. Remained well for two years, then symptoms gradually recurred.

January 18, 1914. No exophthalmos. Slight firm hypertrophy of left, or only remaining, thyroid lobe. Pulse, 140 to 150; blood pressure, 170 to 180; respirations, 30; temperature, 99. Weight, 122. Great nervous irritability. One cc. thyroid residue daily subcutaneously.

January 20. Pulse, 100; respirations, 24; temperature, 98.4; blood pressure, 160. Weight, 123. No "nervousness."

January 27. Pulse, 80 to 90; respirations, 20; blood pressure, 140. Weight, 124. After this note thyroid residue was given by mouth in ten drop doses three times a day with steady improvement.

May, 1914. Seems entirely well. Pulse, 80; respirations, 18; blood pressure, 135. Weight, 131. Left-sided goitre disappeared.

Case VII.—(Illustrating the course of hyperthyroidism and its post-operative relief by the thyroid residue.)

Mrs. G., age twenty-three. Typical mild exophthalmic goitre. In September, 1910, was apparently cured (except of the goitre) by the antithyroid serum.

In November, 1910, relapsed, and in December, 1910, I ligated both superior thyroid vessels under ether. She again gradually recovered, but a moderate goitre persisted. She then entered a training school for nurses, and again relapsed in the spring of 1912. In August, 1912, I ligated both inferior thyroid arteries under local anæsthesia. Complete recovery gradually followed. A year later she contracted scarlet fever and again relapsed, and in June, 1913, the right lobe and isthmus were removed. Complete though slow recovery again. Resumed her nurse's duties in October.

February, 1914. Again relapsed. No exophthalmos. Slight left goitre. Pulse, 110 to 120; blood pressure, 140; respirations, 26. Weight, 150. Has lost ten pounds in last month. Insomnia. Ten drops of thyroid residue by mouth every four hours.

April 20, 1914. Has continued the thyroid residue and her work, except the night duties. The symptoms slowly but steadily improved and now she seems in perfect health. Goitre imperceptible. Pulse, 80 to 84; blood pressure, 125; respirations, 18. Weight, 158.

This patient has continued her duties as a trained nurse, but after any long-continued strain of work she shows signs of hyperthyroidism, and these are always relieved by the thyroid residue. She keeps this material always on hand and administers it to herself during periods of fatigue and has thus remained entirely well during 1914 and 1915.

The autopsy findings in post-operative hyperthyroidism strongly suggest that the symptoms which accompany an over active thyroid are not due solely to the presence in the circulation of an excessive quantity of thyroid secretion. After death the alveoli which can be the only source of the thyroid's product, are always found practically empty of the usual colloid and contain only a solid mass of epithelial cells and their disintegrating remnants. As yet, however, there is no satisfactory explanation of thyroid disease, although its origin and progress or course through successive stages seem more or less clearly perceptible.

All thyroid abnormalities seem to begin with a simple hypertrophy of the gland. This apparently represents an attempt to compensate for automatic demands which are greater than the organ of natural size can supply. The weakness may be congenital or acquired. As rest is a necessity in the successful treatment of any thyroid disease and as one or another kind of over-strain or fatigue is a constant factor in the development, it is probable that fatigue of some kind is at the bottom of these disturbances.

Coincident with, and following the primary or compensatory hypertrophy of the thyroid, there are evidences of that which is called hypothyroidism. These signs may deepen into the symptoms of myxoedema, with or without atrophy of the gland, or change more or less gradually into the condition generally described as that of hyperthyroidism, and the latter may in turn be followed by exophthalmic goitre and that by an irregular myxoedema.

More frequently, however, the primary compensatory hypertrophy remains permanently as a "simple" goitre in which degenerative changes often supervene. But any of these "simple" goitres under influences which can only be construed as those of fatigue, may give evidences of more or less pronounced hypo or hyperthyroidism.

Every case of thyroid abnormality does not plainly pass through these different phases of symptomatology, but so large a number do that it is an assistance in diagnosis and preventive treatment if the apparent progression from a less to a more severe disturbance can be recognized. The constant suggestions in these disorders is to prevent fatigue and "help out" rather than oppose a gland which seems to be trying to do its duty.

In the presence of the prevailing ignorance of thyroid physiology, thyroid feeding, to help out or assist the apparently struggling thyroid, ought to be the first consideration. Therapeutic efforts should be directed toward conservation rather than destruction. Nevertheless experience has proved that radical operation is not infrequently required. But the disease should not have been allowed to advance so far.

The symptoms of supposedly defective or excessive functionation of the thyroid are by no means well defined. Judging from the undoubtedly honest reports in literature, disturbances referable to almost every organ in the body may be relieved or cured by thyroid feeding or by thyroid operations, that is by measures designed to increase or decrease the amount of thyroid secretion.

In this confusion and when the local symptoms are otherwise unexplainable, the thyroid should always be examined. If it is perceptible to sight or touch, it is enlarged and so constitutes an abnormality which is most commonly associated with "hypothyroidism." Under these conditions one or another kind of thyroid feeding is a legitimate therapeutic experiment. If the commercial tablet fails to give relief the form of the medication and not the diagnosis may be wrong.

Probably the most numerous group of patients who present these irregular or indirect thyroid disturbances are those commonly referred to the gynecological or "nerve" specialists.

The following case histories are illustrative:

Case VIII.—(Illustrating persistent menorrhagia with mild hypothyroidism relieved by feeding thyroid "residue.")

Miss R., age thirty-eight. Treated for years for neurasthenia and defective gastric and intestinal functionation and menorrhagia. Apparently well nourished woman. No gross abnormalities. Isthmus of thyroid perceptible. Urine contains much indican. Pulse, 80; blood pressure, 150. Weight, 128. Chief complaints are mental and physical weakness and menorrhagia. Is only able to be out of bed about six hours daily. During menstruation, which lasts nine days and is regular but with excessive flow, she has to remain in bed. Has been curetted about once yearly for three or four years without improving the menorrhagia. Frequent severe headaches, with nausea, anorexia, eructations of gas. Evident intestinal fermentation. Constipation. Wakeful at night.

During November, 1914, thyroid feeding with the commercial tablets was found to excite marked evidences of hyperthyroidism. The thyroid proteins relieved some symptoms, but had no effect upon the November menorrhagia.

December 18, 1914. Ten drops of thyroid residue given by mouth every four hours. There followed an almost immediate improvement in the abdominal symptoms. After one week the bowels moved regularly, the gaseous indigestion was decidedly less, and she began to have some appetite.

January 15, 1915. No headaches during the last month for the first time in two years. Menstruation lasting six days instead of the usual nine, and moderate in amount. No indigestion. Taking 20 drops of thyroid residue every four hours.

March 1, 1915. Seems well though still too easily fatigued, both mentally and physically. But the gaseous indigestion still occurs after fatigue. Headaches and menstrual disturbances seem entirely rectified. Pulse, 76; blood pressure, 130. Weight, 139.

Case IX.—Miss L., age twenty-five. Mother shows mild typical myxoedema. During the last four years has been curetted six times for menorrhagia. Usually the flow lasts ten days, and recurs every twenty-five days. Has a very dry skin and complains of wakefulness and bad dreams, but otherwise appears as a well-nourished though pale young woman, with less than the normal vigor.

May 21, 1914. Only complaint is that of menorrhagia. Given twenty drops thyroid residue three times daily by mouth. No perceptible change followed except some improvement in physical vigor. The next period, which began June 8th, lasted six days and the flow of blood was not excessive. The periods in July and August were entirely normal, of five days' duration, and with only a slight flow of blood. After this the thyroid residue was omitted, but the September menstruation was again of ten days' duration and excessive. Following this experience, the thyroid residue has been continued, and the October and succeeding menstruations have caused no annoyance. She is taking twenty drops of thyroid residue containing 2 per cent of iodized protein twice daily now, and feels so well she expects to continue the medication indefinitely.

Experimentally, the thyroid residue greatly increases the vigor and rapidity of the uterine contraction. A similar preparation of the pituitary produces a spasm of this muscle. The thyroid material seems to act in a more physiological manner and may be found useful by the obstetrician.

Case X.—Mrs. F., age twenty-eight. Four months pregnant. Slight thyroid enlargement. October 2, 1914. Complains of asthenia, headaches, constipation and some wakefulness. Not then knowing of the possible effects of the thyroid residue upon the uterus, and regarding this case as one of moderate hypothyroidism, I advised ten drops of thyroid residue every four hours. On the second day after beginning this treatment there followed an abortion. The time from the beginning to the end of the uterine contractions was only about four hours. The recovery was uneventful.

After this experience I have been careful to avoid the thyroid residue if there is any suspicion of pregnancy.

The manner in which any kind of thyroid feeding acts is a matter of speculation. There is a general agreement that its efficacy depends upon some iodized material which is found only in the thyroid gland, and no other iodin compound can take its .place, although there is considerable probability that iodin in any form can exert its effects only after its passage through the patient's thyroid.

From the animal thyroid a great number of iodin compounds can be separated and when administered experimentally either by mouth or hypodermatically some of them are exceedingly toxic. These facts suggest that the thyroid secretion is unstable and can under pathological influences be split up into some closely related but more or less poisonous product. In other words it may vary in quality as well as in quantity and therefore the quality of the secretion is extremely important.

When any thyroid product is administered by mouth it must pass through the digestive tract into the liver and then the portal vein. When it reaches the general circulation it should have the form of some animo-acid which probably contains iodin.

If this presumably iodized animo-acid has the same structure as the normal thyroid product it should supplement or replace the function of the patient's thyroid. If it is closely related to the normal thyroid secretion it might be poisonous or it might act as an easily assimilable form of nourishment for a weakened or diseased thyroid. Before these uncertainties can be satisfactorily explained it is necessary to demonstrate beyond a reasonable doubt the active principle of the gland.

From many human and animal experiments (the latter are now beginning to be published) it seems probable that the portion of an aqueous extract of the thyroid designated above as "thyroid residue" at least contains the normal active principle of the gland. It seems to produce the best effect in cases of thyroid abnormality in which the blood pressure is high or above 140 or 150 mm. of mercury. In cases with a blood pressure below 120 its effects are uncertain but practically harmless.

In thyroid abnormalities with a noticeably low blood pressure or below 110 or 115 mm. of mercury, especially if there is also present the pallor which suggests that of myxoedema, the tablets of the thyroid proteins are quite constantly beneficial. In many of these cases the commercial thyroid preparations will excite or aggravate evidences of hyperthyroidism, while the thyroid proteins or residue will relieve these symptoms. The tablets containing 1 per cent, 2 per cent or 5 per cent of the iodized proteins are about equivalent in their physiological activity to ½ or 1 or 2 grains, respectively, of the dessicated tablets of thyroid.

In conclusion, it should be stated that many cases which present thyroid enlargement and other symptoms which cannot definitely be classified as those of either hypo or hyperthyroidism may fail to be relieved by any kind of thyroid medication, but may have their disturbance improved or cured by feeding with material derived from some other organ. The nucleoproteins, globulins and coagulable proteins obtained respectively from the adrenal, the pancreas, the thyroid, the pituitary and the ovary are sometimes efficacious. The dosage of these proteins is from ½ to 1 grain given by mouth three or four times daily.

THE IMPORTANCE OF THE EARLY RECOGNITION OF ARTERIOSCLEROSIS.*

By LOUIS FAUGERES BISHOP, M.D.,
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THE definition of arteriosclerosis in the minds of most people involves the presence of palpable physical changes in the blood vessels, with accompanying changes in the heart and other organs. In my own work, I have ventured to define arteriosclerosis as a disease consisting of a disturbance of metabolism (meaning a disturbance of the physiology of individual cells), leading eventually to changes in the heart, blood vessels, kidneys and other organs. Thus, it seems to me rather a question of pathologic physiology than pathologic anatomy.

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* Read at the Annual Meeting of the First District Branch of the Medical Society of the State of New York, at Nyack, October 9, 1915.

The importance of discovering arteriosclerosis is very great at all stages, but it would be particularly valuable if it could be recognized before permanent structural damage had been done. This will ultimately be accomplished by a closer observation of the chemical processes of the body, particularly those pertaining to protein chemistry.

Treatment founded upon the early recognition of arteriosclerosis must be based upon some definite theory of the disease, and not consist of a promiscuous attack upon symptoms. It has seemed to me that the real origin of arteriosclerosis was a change in the relation of the cells to proteins, analogous to a sensitization such as is the basis of hay fever and other anaphylactic phenomena.

The causes for this change are found in what Crile, in his Wesley M. Carpenter lecture* last Thursday at the New York Academy of Medicine, defined as the kinetic drive. The individual is subjected to some sensitizing event, such as a severe infectious disease, a period of great anxiety or poisoning by some foreign protein. Crile lays great stress upon the intermediate office of the internal secretions, while I lay great stress upon the disturbance of the physiology of the individual cell.

The point is, however, that at a certain time the disease, known as arteriosclerosis, is acquired; that it consists of a disturbance in the field of pathologic physiology, and that this process when once inaugurated ordinarily goes on indefinitely so long as the disturbance of metabolism is not properly dealt with.

With this definition of arteriosclerosis in mind, it is evident that our present means of detection of arteriosclerosis in its early stages are not adequate. A person who has given long and continuous thought to this matter is able, after a careful examination, to form an opinion as to the existence or non-existence of the elementary arteriosclerotic processes, just as a man of experience, after a prolonged examination of an individual, can form a definite opinion as to whether that individual is sane or insane.

In future the elementary study of the physiology of the individual by testing his relation to various proteins may prove to be the method by which cellular processes may be appraised.

The disease, as thus defined, has become conspicuous, and appears in all modern statistics under the name arteriosclerosis or cardiovascular-renal disease. Thus, arteriosclerosis, the general disease, the mortality of which is so frequently spoken of, shares its name with the calcareous degeneration of the arteries that is physiologic to old age and the fibrosis of the arteries that is seen in syphilis, lead poisoning and secondary to kidneys seriously damaged by infectious disease.

It is these latter conditions in our clinical experience that make it difficult to get a clear conception of the general disease, also called arteriosclerosis, which in its earlier stages is a matter of disturbed physiology, and only in later stages shows structural change.

The importance of the early recognition of this condition is as great as any disease that threatens life in modern times. It is twice as important as it was in former times when people lived differently because during the past thirty years the number of victims has increased in a ratio of from 2 to 1.

This lack of definition, which has mistaken the lesion for the disease, is a great detriment to early recognition. It is hard to grasp at first the main point, that the thickening of the arteries and the increase in connective tissue in the heart and kidneys are the result of the disease and not the disease itself. The disease itself is a disturbance of metabolism and affects in a greater or less degree all the cells of the body.

You have heard the discussions of physicians in the presence of advanced arteriosclerosis, or cardiovascular-renal disease, as to which of these organs was the originator of the trouble, and there was seldom any agreement as to whether it should be called heart disease, Bright's disease or hardening of the arteries. Nor was there any conclusion possible because the disease consisted primarily of a disturbance of the relation of all the cells in the whole body to those nutrient substances upon which the life and health of these cells depended. It is this process by which the cells of the body are nourished that we call metabolism. Food enters the body and by certain elaborate processes undergoes stomach and intestinal digestion. Afterward each cell must select and re-digest this food material for its own particular purpose. The importance of metabolism, while verbally acknowledged, is seldom thoroughly appreciated. Upon an early appreciation of its relation to cardiovascular-renal disease depends the prevention and treatment of these conditions.

First, there is the general disorder of the cells of the whole body, without special localization. Later, some particular organ has suffered sufficiently to give symptoms. If it is the heart, we call it "heart disease"; if it is the kidneys, we call it "kidney disease" and so on.

"Arteriosclerosis" is the name that is given to the general disease that finally results in organic damage.

I have tried very hard to make this conception clear, for many failures on previous occasions do not leave me with a feeling that the distinction between arteriosclerosis, the disease, and arteriosclerosis, the lesion, is easy to make.

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* "The Kinetic Drive—Its Phenomena and Its Control," by Geo. W. Crile, October 7, 1915, N. Y. Acad. Med., Stated Meeting.

So much for the nature of arteriosclerosis, the general disease.

The cause is to be found in a change in the bio-chemical relations of the cells to particular proteins. This change is in the nature of a sensitization that may result from some severe illness or great nervous shock, or from actual poisoning by a particular protein which has been absorbed in a crude form or in very great quantities. When the cells have become sensitive to a particular protein, so long as the protein comes in contact with them, they are liable to irritation and destruction.

If there is any one thing that has been made plain by our advance in the knowledge of biochemistry, with all its ramifications into the domain of ferments, hormones and so forth, it is that *qualitative* are far more important than *quantitative* relations. The amount of a particular protein that is necessary to cause a reaction in a sensitized animal is so small as to be almost inconceivable. The minuteness of the quantity of a particular food that can keep up the irritation of the cells in a person who is sensitive and continue the process of the development of arteriosclerosis is surprising.

The proposed definition of arteriosclerosis compels the opinion that at the present moment its recognition will depend as much upon the skill of the physician as upon any particular technical investigation.

In the same way, treatment must be a matter of art as much as science—the art which can prevent the kinetic drive, or if that be not possible, render it innocuous; deprive it of the intermediate instruments of damage. If a person is under the stress of worry or of diseases which are liable to render him sensitive to particular proteins, then is the time when careful dietetics should be instituted.

A man who is living on small quantities of plain food, and who is getting an abundance of outdoor exercise, is not nearly so liable to develop cardiovascular-renal disease under the influence of infection or nervous strain as is the lazy man who is consuming large quantities and many varieties of proteins.

The subject of my paper is the importance of the early recognition of arteriosclerosis, but I would like to make a plea, which is of far more importance at the present time, and that is a plea for an acceptance of the belief in the existence of early arteriosclerosis in this disturbance of metabolism which we call by other names than arteriosclerosis, and which really is pre-sclerotic, in that no structural damage has been done from which recovery is not possible.

Indeed, in advanced arteriosclerosis, it has seemed that the functional element was far greater than it was possible to believe until treatment had been instituted.

In general, this treatment has been founded upon a belief that the disease consisted of an acquired intolerance to certain proteins, which has been met by the strictest attention to the intestinal tract, by the absolute withdrawal of as many proteins as possible, and by the stimulation of metabolism by exercise and other means.

This Utopian idea of recognizing disease at its very beginning will probably not interest the average man so much as the discussion of the early symptoms of the disease, arteriosclerosis. The earliest symptoms of arteriosclerosis are coincident with the earliest symptoms of disturbance of metabolism. Often enough, repeated attacks of so-called biliousness, sick headaches and intestinal fermentation point to a tendency to this disease. One of the earliest symptoms of the disease that I know of is discomfort in the front of the chest on exertion after eating. This discomfort has usually been referred to the stomach, but it is referable to the heart muscle at a time when this muscle is being flooded by the products of digestion as they are absorbed into the blood.

The next early sign of arteriosclerosis is a disturbance of blood pressure: usually, a tendency to high pressure, but sometimes where the depressor poisons are in the ascendency, a tendency to low pressure. At this stage, proper dietetic, hygienic and medical treatment can very often arrest the disease entirely and restore the patient to health. At a later stage, a checking of the process and a continuation of life and strength can only be accomplished by a continuous and strict regimen.

SYPHILIS AS AN ETIOLOGICAL FACTOR IN EPILEPSY.*

By **WILLIAM T. SHANAHAN, M.D.,**
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THE bearing of syphilis as a causative agent to epilepsy and its common associate, mental defect, has been considered for many years. It was not until very recently that the Wassermann and Luetin[1] tests have enabled us to make an attempt to definitely establish the exact facts regarding this relationship.

While the spirochetes have been found in the brains of paretics to the extent that by Noguchi paresis is regarded as a chronic parenchymatous encephalitis based upon a syphilitic infection, there has not so far as I know been a case of ordinary epilepsy in which a similar finding has been reported, although such is very possible.

Convulsions are not uncommon in the later stages of paresis. It has been asserted by Mott[2] that one must bear in mind the probability of the association of an active multiplication of the specific spirilli in the cortex of the brain with production of toxins and the onset of seizures.

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* Read before the Cayuga County Medical Society at Auburn, August, 1915, and the Medical Society of the County of Seneca, at Ovid, October, 1915.

Mott compares the search for spirochetes in the brains of paretics with the proverbial search for the needle in the hay stack. He assumes there may be a biological difference between the spirochetes of paresis and tabes and those of primary syphilis. The fluids and tissues of the body may change and thus permit the multiplication of the spirochetes, the resulting production of toxins causing a meningo-encephalitis in the paretic. Why could not a similar state of affairs perhaps with a strain of spirilli less malignant in effect produce in some infected individuals the group of symptoms we designate as epilepsy. This might well occur in hereditary cases as well as those in whom the lues was acquired. The inflammatory process in the brain would not be as widespread or destructive as in the paretic, and consequently the resulting symptoms less marked.

The seizures might be caused by the congestive stasis of the cortical circulation, which results, according to Mott, from the escape of toxins into the cerebro-spinal fluid secondary to an active multiplication.

Fisher[3] states that syphilis of the nervous system consists of infiltration of granulation material either in the membranes of the cord and the brain and the walls of the blood vessels leading to their occlusion, or to tumors, i. e., syphiloma. It gives local symptoms—cerebral paralysis, focal epileptic seizures, cranial nerve lesions, transverse myelitis, etc. Conditions acute in type are not necessarily permanent, as the infiltration may be absorbed and complete recovery take place. No destroyed tissue, however, is ever renewed.

Reuben[4] holds that there is only possible one mode of transmission of syphilis from mother to child, and that is by way of the placenta. Whether a healthy non-diseased placenta can transmit spirochetes is an open question. Sufficient evidence is at hand to prove that in the majority of cases of syphilitic infants pathologic findings are noted, such as syphilitic virus is known to produce. Spirochetes are usually found in abundance in the fetal portion of the placenta and almost always in the cord, but are seldom found in the maternal portion of the placenta. Reuben deduces from this these facts: First, If the infant is syphilitic its father may or may not have syphilis. Second, If the infant is syphilitic its mother invariably has syphilis. Third, The most usual mode of transmission of syphilis to the infant is by way of the placenta. Reuben concludes from the results of a series of examinations that mothers who give birth to syphilitic children are themselves syphilitic whether they have symptoms or not, and react to the Wassermann test as do those who have acquired syphilis in an early latent stage. A certain percentage of syphilitics with active lesions do not give a positive reaction, so that absence of positive Wassermann reaction in certain cases may be thus explained. A syphilitic mother with latent syphilis may give birth to children who are immune to syphilis and healthy at the same time. The great majority of infants of syphilitic mothers are themselves syphilitic. The most usual time for a syphilitic woman to abort is after the fourth month, at a time when the placenta is fully developed. This lends further proof to probable infection of the foetus by way of the placenta at this time. At the onset of the disease its virulence is not as great, i. e., the first three months, as it is at a later date. Only 28 per cent of all conceptions of syphilitic mothers result in a full term syphilitic infant, 85 per cent of these die within the first year, so that 5 per cent of all conceptions of syphilitic mothers result in syphilitic infants which survive the first year. Adding 18 per cent of apparently healthy infants born to syphilitic mothers to the 5 per cent of syphilitic infants which survive the first year, there is a total of 23 per cent of all infants, which, born to syphilitic mothers, survive the first year. Seventy-seven per cent of all conceptions of syphilitic mothers result in death of the infants within one year of birth.

In abortions due to syphilis, spirochetes are, according to Browning and McKenzie[5] present in enormous numbers. In infants with congenital syphilis who die early, the organisms may be found in considerable numbers. The spirochetes become more scanty in congenital syphilitics surviving early childhood. The same writers state "a negative reaction in a case presenting active lesions is strongly against the latter being due to congenital syphilis."

Syphilis as an etiological factor is responsible for the most varied forms of nervous and mental disease. The changes in the young differ widely from those in the adult. In the former the developing brain is interfered with by a destruction of essential normal growth, whereas in the adult the processes are usually more an inflammatory change, gummata, etc. Cerebral hemorrhages in early life have in many instances a syphilitic basis.

Stoner and Kaiser[6] found 7.9 per cent positive Wassermann reactions in a series of 1,050 cases of all grades of amentia. They failed to formulate any conclusion regarding definite action of hereditary syphilis. Of the 83 positive cases, according to the Binet test, 17 were idiots, 40 imbeciles, 23 morons and 3 backward. Raviart, Breton and Petit, cited by Noguchi, found 30 to 40 per cent positive Wassermanns in epilepsy, idiocy and imbecility. Atwood found 14.7 per cent of 204 idiots gave a positive Wassermann reaction.

Remembering the blighting influence of syphilis on foetal and infantile life, one is not surprised to learn that in a series of 1,113 Wassermann examinations made in the Sonoma State Home for Feeble-minded in California it was found that 5 per cent were more or less positive. Moulton at the Minnesota School for Feeble-minded examined 600 patients and obtained a positive Wassermann, ranging from slight to strongly positive in 77, or 12.83 per cent.

In Bielefeld in 1912 in 800 Wassermann's made on epileptics of all ages only a small percentage were positive.

Kassowitz cited by Hyde[7] states that one-third of all foetuses die in utero and of the remainder the greater number succumb during the first six months of life. He claims that statistics show that paternal heredity has the lowest mortality, about 30 per cent, while that of maternal is about double, or 65 per cent, and mixed, the most fatal, from 80 to 90 per cent. From this it can be seen that the viability of the foetus or infant is so impaired that a comparatively small number only of the product of such pregnancies survive sufficiently long to reach the age of childhood and very few the adult period, thus making the number of the feeble-minded or epileptic who will present evidences of hereditary syphilis a comparatively small one as compared to the entire number of feeble-minded and epileptic. Hyde stated that although out of 134 children born of parents, one or both of whom had syphilis, but 13 cases gave a positive Wassermann reaction, these children never having enjoyed good health. It was found that out of the remaining 103 whose serum was negative the majority were below the normal physically and probably many of them mentally.

Nonne is of the opinion that syphilis is not on the increase, although nervous diseases in general are apparently more common than formerly. He emphasizes the fact that a large number of healthy children in a family is no contra-indication of a past lues in the parents, and "that not every organic nervous disease in a person infected with syphilis is necessarily of specific origin." Nonne, as well as other writers, have mentioned the theory of a syphilitic virus with a special toxicity for the nervous system, resulting in secondary changes in the brain section such as meningitis, gummatous nodules or in many cases an infiltration of the blood vessel walls.

Heubner states, "Hereditary lues originates in children in the following manner, either the male or female generative cell, or both, contains the contagion of syphilis. This contagion develops in the growing organism directly from the generative cell and changes it pathologically." It must be remembered that not only this may occur, but that the mother may be infected subsequent to conception and during labor or the infant be infected subsequent to birth and when seen in later years be supposed to have congenital syphilis.

There is no doubt in the minds of many but that alcoholism in the parents has a somewhat similar effect on the offspring as has syphilis, especially when such alcoholism is maternal. In this connection it should be remembered that oftentimes the two, alcoholism and syphilis, co-exist.

Nonne further states that there may be an attenuation of the specific virus, e. g.: in one family there may be first abortion, later premature birth of dead children, still later birth of full term children who show immediately specific symptoms of later development, and finally there may be born children who are healthy at birth and continue so. It should be remembered that the birth of a healthy child may occur in between the birth of two syphilitic children.

Parental infection may long antedate the birth of an infected child. Again symptoms of syphilis may appear late in child, in fact during puberty or adolescence. In consequence of a defective development to be expected to exist in the child with hereditary syphilis, malformation of the spinal cord and the brain results as these most delicate structures of the human body are the last to fully develop and are the ones without doubt most easily affected by toxic agents.

Congenital syphilis may appear not only in the children of infected parents, but in the grandchildren, so that the sins of the fathers are thus transmitted through several generations.

Children infected with syphilis by wet nurses or others caring for them during infancy may, as result of a severe infection, have an interference with the development of the brain and consequently later manifest some degree of feeble-mindedness or epilepsy, or both.

"A negative history for syphilis in the parents of a patient, no matter how carefully inquired into, cannot, according to Camp, be trusted to rule out the diagnosis of congenital syphilis of the nervous system. Mental defect often associated with paralytic and convulsive phenomena is frequently due to congenital syphilis. The diagnosis in such cases must be made by the peculiar clinical manifestations, but it will often be confirmed by a positive Wassermann reaction on the blood of cerebro-spinal fluid or both and by the results of therapy. The pathology in such cases is probably a chronic interstitial encephalitis. There are many cases of meningo-encephalitis and meningo-myelitis occurring in children that are due to inherited syphilis but which are often mistaken for tuberculous meningitis or for poliomyelitis. The clinical findings are the best diagnostic criteria in such cases."

Dr. Chalmers, Medical Health Officer of Glasgow, carried on a series of experiments during an entire year and as a result of his observations concluded that poorly nourished children are not in that condition to any extent because of syphilitic infection, and treatment to improve their health need not run on these lines; the congenital syphilis can exist without any apparent effect on the general health of the child; and that about 8 per cent of all groups of children from the poorer classes in Glasgow give a positive Wassermann reaction. If the reaction is to be considered as pathognomonic of syphilis, it would seem that a considerable proportion of the children of the poorer classes are infected with the disease.

Baisch[8] urges that the puerperium is an excellent time for commencing treatment of syphilis and that apparently healthy women bearing syphilitic children will consent to treatment then, who heedlessly disregard the necessity for it a few weeks later as they feel well. He had a case of rupture of the uterus from syphilitic changes, which were also responsible in another case for premature separation of the placenta. He advocates salvarsan treatment of all syphilitic pregnant women and parturients, and reports cases in which this was done during the puerperium. In three cases salvarsan treatment during the pregnancy was well borne and seemed to have a favorable influence on the offspring, all three being apparently free from syphilis, but the blood from the umbilical cord in one gave a weak Wassermann reaction. These three women had aborted at each preceding pregnancy.

Lesser[9] reports epileptiform seizures occurring eight weeks after use of salvarsan and refers to seventeen similar cases in literature. The effect on the nervous system of toxic products resulting from chemical change of salvarsan he ascribes organic changes which either favor the settling of spirochetes at this point or pre-existing syphilitic changes may focus the toxic action here. It is the consensus of opinion at present that late degenerative changes found in syphilis of the nervous system, especially general paresis, are not materially influenced by salvarsan or neo-salvarsan, no matter how administered. Some early cases of cerebral syphilis may be markedly improved by salvarsan. In a few cases of epilepsy treated at the Colony by salvarsan and neo-salvarsan an improvement was noted, but in others no material benefit was obtained.

Stoll[10] calls attention to the fact that while it has been recognized for many years that syphilis shows a marked predilection for the arteries, that it was not until the advent of the Wassermann and Luetin tests that the real importance of the possibility of congenital syphilis being an underlying cause in some of the cases of hypertension, occurring in middle life. Congenital and acquired syphilis probably play an important role in the occurrence of interstitial nephritis in the adult. The possibility of syphilis being a very important feature in apoplexy, irrespective of age, must be given consideration, although it by no means follows that various symptoms may occur in the syphilitic subsequent to infection, are always due to syphilis. The infection may be more or less dormant for many years, and as Stoll expresses it, sometimes die out, without in any way appreciably affecting the health of his host or shortening his life. But there is at present no means known to determine in which case this will happen and in which disaster will follow. He issues a note of warning that valuable as the Wassermann and Luetin tests are in the diagnosis of obscure cases, it must not be taken that these tests are infallible. Carefully obtained history may be supplemented, but not supplanted by these tests. He suggests what might be termed "familial cardio-vascular syphilis and that apoplexy and sudden cardiac death occurring in middle life are almost always due to syphilis and it is his opinion an underlying syphilis must also be considered even in the very aged."

Auer[11] states that: "Where the vitality of any given part is lessened, as by impaired blood supply or trauma, this part is more favorable for spirochetal development."

"The symptomatic manifestations of syphilitic disease of the central nervous system are aside from clear cut cases equally as relative and depend upon the localization of the syphilitic process and the susceptibility of the tissues."

"The ultimate result of the presence of the organism of syphilis in the nervous system is a neurotic degeneration."

"Not uncommonly in general paralysis or cerebral syphilis, there is a pronounced lack of correlation between the symptomatic and microscopic findings."

The same should hold true in those diagnosed as epileptic.

As evidence showing the possible relationship between syphilis and epilepsy, I will present nine brief abstracts of histories of patients at Craig Colony in whom evidences of syphilis being present was obtained. It will be seen that while in most the causative relationship between the syphilis and the epilepsy is quite clear there is some doubt as to such relationship in the cases of Harry B. and Mark K. M.

Edmund S., No. 3368. Admitted August 24, 1911. Born April 24, 1894. Father German, mother Italian. Four maternal cousins had "hysteroepilepsy." Patient born at full term, said to have been infected with syphilis by a wet nurse when an infant. Born in Italy, came to United States in 1902. Apparently had ordinary health until the age of fourteen years when first epileptic seizure occurred, Grand mal in type. The second occurred two months later. Early in 1911, previous to his admission to the Colony Wassermann test made was positive, following which he received mercurial treatment. Upon admission to the Colony he was well nourished, right knee jerk more active than the left, all reflexes sluggish. No paralysis. Occasional headache, following seizures, had bone pains at night. Mental status good.

November 10, 1911. Wassermann test made

in Colony laboratory positive. Shortly after which he was given salvarsan, six grams intravenously.

February 1, 1912. Specific skin lesions very slow in healing. Had frequent nocturnal seizures very irregularly. Wassermann continued positive.

July 21. While another patient was preventing him from striking a third patient, Edmund S. whipped out a pocket knife and stabbed the other patient in the upper chest, wound penetrating ascending aorta, producing death. Edmund S. transferred to Matteawan State Hospital.

Harry B., No. 3154. Born March 15, 1878, single, admitted to Colony November 26, 1910. Mother died at forty-four years of gastric cancer. Father died at seventy-one years of some heart disorder. Had apoplexy at forty-five years, resulting in left hemiplegia. Paternal uncle of patient has been in hospital for the insane for twenty-six years. Early history of patient apparently negative. He had an apoplexy at twenty-two years of age with resulting left hemiplegia. First convulsive seizure occurred at thirty years of age, following which seizures recurred from four to eight weeks, apparently severe in type. Well nourished, some fibrillary twitching and tremor of tongue on extension. Temperature sense disturbed in the left hand and arm. Mental status fair. Wassermann test made February, 1912, doubtfully positive, one made January, 1914, slightly positive.

The question in this case is had patient hereditary or acquired syphilis? What relation has the syphilis to the epilepsy?

Daniel F. E., No. 3899. Admitted November 18, 1913. Born March 10, 1887. Is a Swede, waiter by occupation. Came to America when thirteen years old. Family of patient is negative as to history. First epileptic seizure occurred at the age of twenty-one years. Physical condition upon admission that of a well nourished youth. No paralysis. Moron. This patient gave a history of being sexually immoral for quite an extended period. Wassermann examination January, 1914, positive. Salvarsan given intravenously, followed by marked reaction. Neo-salvarsan given in May, 1914, with reaction similar to use of salvarsan. At the present time physical condition improved, seizures less frequent.

Mark K. M., No. 3889. Admitted November 3, 1913. Born October 20, 1890. Divorced. Is a traveling salesman. Paternal grandfather died at forty-eight years of apoplexy. Father said to have had epilepsy. Maternal aunt said to have had convulsions. Majority of mother's people "nervous." Patient's father had first epileptic fit when thirty years of age, another at thirty-three, one at thirty-five and one at thirty-six, following which seizures increased until he had one every nine months. Paternal uncle paralyzed for more than thirty years, following early apoplexy. Patient born at full term, delivery natural. Mother said to have been much depressed and worried for a time previous to birth of patient. He made good progress at school which he first attended at the age of five years. Had scarlet fever at seven years, measles at eight, pertussis at eight and diphtheria at fifteen years. Diphtheria said to have been very severe, patient nearly dying. Patient worked as clerk in a grocery store at eighteen years but had to leave on account of failing health. First convulsion said to have occurred at thirty-three years, while patient was in a theatre in the evening. He did not return to consciousness until he found himself at home in bed. Second seizure occurred one month later. Bites tongue and urinates during seizures. Memory has failed and he is more irritable in disposition. Marked prostration following seizures which after admission to the Colony present themselves in series. Physical examination upon admission showed valvular heart disease, poor physical condition, marked flat feet. Skin pale, as also mucous membranes. Passed the mental test at adult age. Owing to late onset of epilepsy, Wassermann test was made shortly after admission to the Colony and found to be strongly positive. Salvarsan was given intravenously, with some improvement, but considerable improvement in general health. Seizures occurring at intervals. Has patient hereditary or acquired syphilis causing epilepsy or is syphilis only incidental in an individual with an hereditary predisposition to epilepsy?

John F. M., No. 3167. Admitted October 4, 1912. Born January 15, 1878, widower, locomotive engineer. Father alcoholic. Sister died at thirty-five years of epilepsy. Patient apparently well during infancy and childhood. In 1900 was infected with syphilis. Had secondary symptoms following which he received treatment over a considerable period. First epileptic seizure occurred in 1908, patient falling downstairs at the time. He says, however, that for some time before this he had spells which he later thought were mild epileptic seizures, during this he had a queer feeling and it was impossible to concentrate his mind on any subject. After his admission to the Colony, he had both severe and mild seizures, the mild ones being characterized by patient as an "all gone feeling." Very automatic following such seizures, attempting to assault those about him, and runs out of the building. Mind deteriorating progressively since onset of seizures. Well nourished physically, has an obstinate constipation. Wassermann test made in 1911, proved positive, following which salvarsan was given intravenously without marked improvement of epilepsy. August 1, 1911, Wassermann still positive. Given another dose of salvarsan. October 4, 1912, found dead, death having apparently occurred following a seizure. Coroner's autopsy showed petecchial hemorrhage over upper chest and arms. Marked cyanosis of face. Ventricles enlarged, containing considerable fluid blood. Brain substance weighed 1515g. General signs of increased intracranial tension. Considerable intimal change in aorta. Was epilepsy induced by syphilis in defective person?

Charles F. Y., No. 3300. Admitted May 25, 1911. Born March, 1878. Father a physician, said to have been epileptic, died at fifty years of apoplexy. Mother died at forty-five years of gastric cancer. Paternal grandmother hysterical. Paternal aunt epileptic. Patient seemingly normal during early life. Made good progress in school. Had scarlet fever at twelve years, diphtheria at fourteen years. Onset of epilepsy at twenty years. Infected with syphilis at twenty-eight years of age. Seizures occurred at first once a year, but later from six to eight times a year, usually diurnal and Grand Mal in type. Physical examination showed chronic heart lesion well compensated. Patient had ataxic paralysis at time of admission, result of syphilis in a person already epileptic previous to infection with syphilis.

George D. K., No. 3087. Admitted August 4, 1910. Born March 17, 1883. Married. Father died of tuberculosis. Paternal grandmother of same disease at forty years of age. Maternal grandmother had fainting spells. Maternal uncle became insane at fifty years living twenty-five years thereafter. Maternal first cousin insane. Patient's early life apparently uneventful, had pertussis at four years, measles at five years and scarlet fever at eight years. On September 25, 1907, patient had a typical cerebral hemorrhage with complete right hemiplegia, remaining in bed four weeks. First and second convulsive seizure occurred on March 8 and May 1, 1908. Mental status fair. Three Wassermann tests made proved negative. Luetin suspicious. What was cause of early cerebral hemorrhage?

Carrie L., No. 3000. Admitted March 10, 1910, married. Born January 7, 1875. Common school education. Mother died at twenty years after confinement. Father living. One of the grandfathers said to have had convulsions. Father has headaches. Mother nervous. Patient born at full term, had frequent nose bleeds during early life. Had scarlet fever at seven years, measles, chorea, diphtheria and pertussis at age of nine years. First convulsion occurred at thirty-six years, this being severe in type. Previous to onset of epilepsy patient had considerable domestic trouble. Mental deterioration progressive since appearance of seizures. Following seizures in 1910 patient had paralysis of left arm and was seriously ill for a time, after which paralysis became much less marked. Apparently poorly nourished at time of admission to the Colony. Both breasts atrophied and not menstruating. Discharge of thin pus from the left ear which patient said had been present for seven years. Ptosis of both lids. Pupils normal when admitted, pulse irregular. Tongue coated and patient markedly constipated. Poor co-ordination. Diminished tactile and pain sense. Knee jerks sluggish. On December, 1910, patient presented a slight right hemiplegia, following convulsive seizures. A few days later it was noticed that she was totally blind. She became very lacrymose and her mental condition was much deteriorated. Ophthalmoscopical examination showed double atrophy with poor prognosis for impairment of vision. June 1, 1911, considerably improved physically. June 1, 1912, had 119 seizures, severe, during the last year. June 1, 1914, progressive deterioration, both mentally and physically. November, 1914, a large, apparently specific ulcer present on the right side of forehead. April, 1915, Wassermann positive, also one repeated in July, 1915. Did syphilis induce epilepsy in a predisposed person?

John C. Mc. Admitted March 24, 1910, aged fourteen years. Said to have had a fall on the head at six months, causing cerebral hemorrhage. Mother worried previous to birth of patient because her family were not pleased with her marriage. She at the time was very depressed. So far as husband was concerned, however, her married life was pleasant. She was of a nervous temperament, subject to periodical headaches and sick headaches. Patient is the oldest of four children, one of whom had convulsions during teething. Patient had first convulsion at nine months. At the age of six years patient had whooping cough, during which he developed a paralysis of the left side. Mother of patient said that directly after birth she continued to cry for several days. Some of the seizures are Grand Mal in type and others are Petit Mal, followed by automatism. Is feeble-minded. Seizures recur at intervals during subsequent years of residence at the Colony, averaging ten per month. Wassermann test made November 7, 1912, strongly positive. As also one November 2, 1912. Was paralyzed at six years the result of a cerebral hemorrhage, occurring during a paroxysm of pertussis. Did a pre-existing syphilis render vessel walls weak and thus pave the way for the hemorrhage?

In conclusion I wish to mention that in a series of 886 patients at the Colony on whom a Wassermann test was applied to the blood serum, but 22 or 2.48 per cent gave a positive reaction. Included in the number on whom tests were applied were all of those patients at the Colony whose history or physical condition was at all suspicious as regards the existence of syphilis. The natural inference to be drawn from tests applied at the Colony and elsewhere is, that syphilis plays a less active role as a causative factor in the occurrence of epilepsy than has heretofore been thought.

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SYPHILIS OF THE STOMACH.*

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REPORT OF A CASE ILLUSTRATING THE DIFFICULTY OF DIFFERENTIAL DIAGNOSIS BETWEEN CANCER OF THE STOMACH AND SYPHILIS OF THE STOMACH, WITH TUMOR FORMATION.

SYPHILIS of the stomach is rather a rare condition, and it may seem to be a waste of time to attempt to work out the problem of its differential diagnosis. It assumes a more important role, however, when one considers the fact that it may simulate to great perfection—not only the symptomatology but also the pathology of other gastric lesions.

Especially is this true of that form of stomach syphilis which goes on to tumor formation. In this variety, we may have present a gummatous tumor of the stomach, having the same position and same characteristics as a cancer of this organ, and consequently giving the same symptoms and the same signs as a malignant process. Indeed so nearly alike are these two conditions that even an exploratory operation may find us unable to determine with which we are dealing. It is this phase of gastric syphilis which I wish to consider in this communication. And though we will only come across this lesion perhaps once in a thousand cases, yet, when it *is* present, it is truly a life and death matter for the patient that we should make a diagnosis. And may it not be true, that if we are on the lookout for this rare disease, that we will find now and then a patient who has been condemned to die of gastric cancer to whom we can offer a new lease of life in the form of mercury and iodides.

Dr. Max Einhorn has recently reported the histories of two patients who were explored and returned from the surgeon with a diagnosis of inoperable malignancy of the stomach, but who improved so remarkably under specific therapy that diagnosis was proven to be gastric syphilis. Dr. Charles Stockton, in his recent book, relates the history of a similar case—operated by Dr. Roswell Park and diagnosed as cancer—but later clearing up under specific treatment.

It is clearly then of some importance to consider what diagnostic points are available to aid us in differentiating these two diseases. As far as the symptomatology is concerned, we find little that will help us. In syphilis we usually obtain a history of gastric disturbance which has been present for a number of years. Dr. Smithies, in a recent analysis of twenty-six cases of gastric dyspepsia due to this cause, found in the majority of the patients the symptoms were of long duration. The disease may exist for years and manifest itself by periodic digestive upsets.

History of severe pain is more apt to be present in luetic cases. Vomiting and rapid loss of weight are mentioned as prominent symptoms. However, all of these symptoms may be present in carcinoma, and are of little assistance.

During our examination of a patient with a gastric tumor, we may find evidences of the presence of specific infection. This would make us suspicious of the character of the new growth. We would then have a Wassermann test performed to make sure that spirochæte were present. If our Wassermann was positive, we would still be uncertain as to the character of our tumor, for it does not necessarily follow that this general infection is at the bottom of the stomach disorder.

As far as the routine of special stomach examination and special test of gastric activity and secretion are concerned, we cannot look to these procedures for such assistance. The two conditions have a pathology so similar that it naturally follows that they will give the same response to these clinical tests.

Roentgen examination is somewhat more satisfactory. In a recent article by Drs. Downes and LeWald, the Roentgen findings are carefully described. While not typical, they are often suggestive. They consist in various deformities caused by infiltration of the stomach wall. Smithies does not speak quite so hopefully of this method of diagnosis as the other writers just mentioned. I quote him as follows: "Usually neither the fluoroscope nor plate methods return pathognomonic signs. The Roentgen method may ocularly demonstrate deformities in gastric contour, but, in the main, such deviations from normal might readily be observed in benign or malignant peptic ulcer and carcinoma scirrhus or medullary.

It is evident, then, that our various clinical tests and examination will still find us in doubt. Our Wassermann test may tell us that our patient has syphilis—but we are still faced by the fact that we may have our stomach carcinoma as an independent process. Our other tests will often be inconclusive, and even at exploratory operation we may be unable to determine the real nature of the new growth.

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So that we will sometimes be forced to fall back upon the so-called therapeutic test in order to establish our diagnosis. Here, too, we must remember that mixed treatment and salvarsan will sometimes bring about temporary improvement in a cancerous growth. But it will be only for a short time.

In syphilis we would expect a return of fairly normal health, and at least a partial disappearance of the tumor. On the other hand, it is within the realm of possibility that the luetic lesion might be so old that the patient's condition might be so weakened that he would not respond satisfactorily to specific treatment.

The case which I wish to report is one which has recently come under my observation, and which illustrates admirably the difficulties which one may encounter in differentiating the process which is behind a new growth in connection with the stomach. This patient gave a positive history of luetic infection, and his blood gave a double plus Wassermann test.. Under specific treatment there was a great improvement in his general condition, and a decided decrease in the size of the tumor. And yet when the autopsy specimen was examined several months later by a competent pathologist, the growth was reported to be a carcinoma. In this case we feel that we are justified in the belief that there were here the two processes side by side, and that the specific treatment cleared up the luetic process, leaving only the cancer to be found at autopsy. This is the only pathology which would seem to explain satisfactorily the permanent decrease in the size of the original stomach tumor under specific treatment. The patient died as a result of the rapid growth of carcinomatous metastases to the liver.

The history of the case is as follows:

Patient—G. S., aet. 32. He was well up to two and one-half years ago, which really marks the beginning of his present illness. He began to suffer from digestive troubles, and because there was soreness in his right side, the appendix was blamed for the trouble and promptly removed by a surgeon. This failed to relieve his stomach symptoms. For the next few months, he was gradually losing weight, was troubled with backache and a heavy feeling of the stomach and bowels. He remembers that he was so weak and dizzy that he could hardly keep at his work. Several months after operation he began to have a dull pain in the left side, just under the ribs. This pain has kept up ever since that time, a period of over two years. Six months ago he began to feel that he was going down hill rapidly, and was convinced that he had tuberculosis. At this time, he began to vomit in small quantities, usually immediately after eating. The pain in the left side became worse, and the weakness and prostration made it impossible for him to work. We first saw him in April, 1915. He was extremely emaciated and very weak. Careful physical examination revealed no abnormality except in the abdomen. Here one could observe and palpate a hard resistant mass, situated in the epigastric region, midway between the ensiform and the navel. It was about the size of two fists.

Examination of the stomach contents three-fourths hours after an Ewald breakfast (155 cc. removed) showed Free Hcl 15 total Hcl 30 lactic acid absent. Blood moderate reaction. Feces no blood. On inflation of the stomach the mass was seen to be connected with this organ.

Exploratory operation was performed at the Olean General Hospital on April 20, 1915, by the writer, assisted by Dr. J. E. K. Morris. There was a large inoperable growth at the pyloris. On examining the remainder of the stomach this was seen to be thick and indurated. We would estimate the thickness of the walls to be one-half inch. This induration involved all the stomach which was not involved in the pyloric growth, and extended up into the œsophagus. It was this thickening which made us suspect the presence of syphilis.

On being closely questioned the patient gave a clean cut history of specific infection, fourteen years previously. The Wassermann test was done and gave a double plus reaction. This encouraged us to give him a thorough course of anti-luetic treatment. He did well under this regime. Vomiting stopped. Food was well handled, and in four weeks after the operation he was able to do considerable work about the house. A careful examination at this time showed that the tumor mass was only one-half its former size. Improvement continued for about three weeks longer, and the patient gained five pounds in weight. At this time he began to complain of a pain in his right side, and a mass could be felt below the right costal margin. The original tumor was carefully examined at this time, and had not increased in size—nor did this original tumor again show any signs of growth. But the mass at the right side grew rapidly, and in another month filled three-fourths of the abdomen.

At autopsy on September 1, 1915, this large mass proved to be an enormously enlarged liver, filled with hundreds of metastatic nodules. The stomach tumor was considerably smaller than at exploratory operation. The thickening at the cardiac end had largely disappeared. This case presents a number of interesting points to which I will call your attention in closing.

1. The pathology of that form of stomach syphilis which mimics cancer is so similar that even exploratory operation may not settle the diagnosis.

2. A positive Wassermann combined with a

clear luetic history does not prove that a stomach tumor is due to syphilis.

3. The therapeutic test does not make the diagnosis of syphilis positive unless the patient is observed long enough to be sure that the improvement is lasting.

4. Lastly, I wish to put forward the idea that syphilis of the stomach may be one of the precancerous conditions leading to carcinoma of the stomach.

This patient gave a history of stomach symptoms of two and one-half years duration which were similar to symptoms of the present illness. The Wassermann showed that syphilis of the stomach was actively present. It is not at all unlikely that this man suffered from a luetic stomach for two years, and that, on this focus of constant irritation, there developed gastric cancer.

In conclusion, I wish to thank Dr. Chas. E. Simon, of Baltimore, for performing the Wassermann tests on this patient; and Dr. Joseph C. Bloodgood, of Johns Hopkins, for pathological examination of the autopsy specimen.

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CANCER FROM A MEDICAL STANDPOINT.*

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IN his excellent address Dr. Bloodgood has presented most ably the surgical aspects of the control of cancer, and I can concur with pleasure in every word he has said. I only regret that time did not allow him to show all of his pictures, that you might better understand the different phases of cancer, and better appreciate the disease with which we have to deal, which kills 75,000 persons in the United States yearly, with an acknowledged mortality of about 90 per cent from it, of all who are once attacked. He has warned you of the danger of delay in attending to the disease, and urged early and complete surgical removal, which is certainly most wise when such measures are decided on.

But, gentlemen, did you notice the figures which Dr. Bloodgood gave in regard to the end results of the surgical control of cancer? He stated that one-half, or 50 per cent of all cases of cancer are inoperable when they are seen by the surgeons! Did you notice that of the other, operable one-half, not over 25 per cent ultimately recovered and remained permanently well, under the best surgery? Adding these figures together we have 87½ per cent of all cases of cancer, in different locations, which are not reached by surgery, but which succumb to the disease! Did you notice also that he said that the percentage of cures mentioned related to the "best surgery," from which one must infer that the mass of cases under ordinary surgery would show a still smaller ratio of cures: for relatively few of the 200,000 continually existing cancer patients can afford to go to such brilliant operators as the Mayos or Dr. Bloodgood.

What then of the other 87½ per cent of cases for which surgery offers no hope, are they to be left to struggle unaided against the dire disease, until relieved by death? I have frequently protested against the course which is usually followed in regard to cancer, both before and after operation. With a rather extended experience during the last forty years and more, I have rarely if ever found a patient with cancer who has received adequate and continuous care before operation, with a view of discovering and rectifying the cause of the morbid growth. Too often when a cancer is suspected or discovered it is regarded as a foregone conclusion that the malady is hopeless, except as the *results of the disease*, that is, the new growth, may be removed by the knife, X-ray, radium, caustics, etc., only too often to recur. And after a surgical operation, as far as my observation goes, the patients are invariably left entirely to their own resources, with the hope, alas, too often futile, that the tumor will not regrow, but with no attempt to so guide the life that there shall not be the same tendency to a recurrent malignant new formation. I would like to ask if any one present has had a different experience, if so to kindly raise the hand. I wait for an answer: but as none comes I take it for granted that you all, as medical men, follow the general custom of turning over all cancer cases to the surgeon or to the undertaker.

And yet, gentlemen, after many years of study, observation, and experience, I believe that the present, common attitude toward cancer, is all wrong, and that while surgery may always have its function to perform, in removing certain obnoxious products of the disease, more or less efficiently, curing some patients and prolonging the life of others, it can never hope to lessen greatly the morbidity of cancer. I believe, however, that its morbidity and mortality can be materially diminished if intelligent, serious, and prolonged attention is given to it from a medical standpoint, along metabolic lines, which line of thought finds abundant support both from laboratory work and from statistical teachings and clinical experience, all along the past years.

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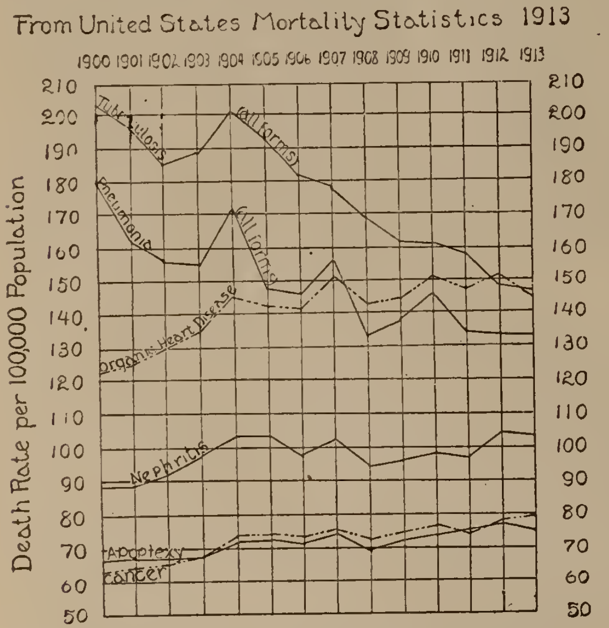
* Read at the Annual Meeting of the Eighth District Branch of the Medical Society of the State of New York, at Olean, September 22, 1915.

Time will not allow me to elaborate at all, as I would like to, the proof of my assertion, and I do not know how many of you will believe what I say. Dr. Park Lewis yesterday quoted an unknown writer who said that it is necessary to repeat a proposition five times to have it effective, for the reason that the first time one does not hear, the second he gives no attention, the third he does not understand, and the fourth he does not believe, so the fifth repetition is necessary. Unfortunately I can not repeat everything five times, so please believe at once, for what I am to say is vital and serious to the hosts of cancer sufferers, present or future; and I stake my reputation on the truth of it, which I believe will be widely accepted before long. As a basis for my thesis I beg you to look carefully at the wall chart before you, which is an exact copy of one given in the volume of United States Mortality Statistics for 1913.



The mortality from organic heart disease, nephritis, apoplexy, and cancer has risen steadily since 1900. If we accept the fact that the increasing death rate of the first three is largely the result of modern civilization, especially from erroneous eating and drinking, it would appear that cancer is due to the same cause.

This represents the recorded deaths, from several diseases, in the registration areas from 1900 to 1913. The upper red line shows that the mortality of all forms of tuberculosis has steadily fallen over 25 per cent during that period. We further see that organic heart disease gives a constant rise in death rate, of from 15 to 20 per cent, nephritis nearly 15 per cent, and apoplexy over 10 per cent, while the deaths from cancer have coincidently increased from 63 to 78.9 per 100,000, or over 25 per cent; in New York City there are twelve deaths from cancer every day, according to the statistics of the Board of Health.

It is worth while to consider these figures seriously for a moment, and the lessons they teach us. The mortality from tuberculosis has declined over 25 per cent in these thirteen years; how has this been accomplished? By the surgeons cutting out its lesions? Not at all, but by a steady, persistent, medical attention to the diease in all its aspects, and by the application of correct principles of living, largely dietetic; for, when we give the patients fresh air and sunlight we promote a proper metabolism, or nutrition, which enables the system to resist the still present bacillus of tuberculosis.

We have further seen from the chart that organic heart disease, nephritis, and apoplexy present a constantly rising mortality, and no one questions that they are due to errors in living, incident to modern civilization, especially along the lines of food and drink, with want of proper exercise to promote perfect metabolism and elimination.

Now cancer closely follows the same lines of increasing mortality, only it exceeds them all, it having risen over 25 per cent in the same thirteen years; the death rate for 1913 was 78.9 per 100,000, the highest ever attained, in spite of ever increasing activity in the study of cancer, and transcendent zeal, intelligence, and skill in the surgeons, who are trying to control it.

I submit to you, gentlemen, if the argument does not seem overwhelming that cancer is no longer to be regarded as a purely local disease, but that, as its death rate rises coincidently with that of the other diseases mentioned, it must have a more or less similar cause; and with the utter failure of surgery to control its increase, we must look in some other direction for means to check its morbidity and mortality?

Time fails me to expound to you at all fully the line of argument supporting all this, which is based on published laboratory studies in the physiological chemistry and metabolism of cancer, as quoted in my little book on "Cancer, Its Cause and Treatment"; nor can I give more than a slight reference to the many expressions found in literature, by men well acquainted with cancer, who have clinically been impressed with the constitutional nature of the trouble, of which the local lesion, or cancer, is but a *result*. But that you may know that I am not alone in urging a medical consideration of cancer, I must very briefly refer to a few prominent names of those whose opinion should bear weight. Indeed, the more I study literature, new and old, the more I wonder that the valuable suggestions found there have not already directed serious attention to and investigation of this aspect of the disease, in place of the immense amount of labor and expense which has been given to laboratory studies with the microscope and test tube, and experiments on rats and mice!

Nearly 100 years ago the great Abernethy, in his "Surgical Observations on Tumors" wrote: "There can be no subject which I think more likely to interest the mind of the surgeon, than that of an endeavor to amend and alter the state of a cancerous constitution. The best timed and best conducted operation brings with it nothing but disgrace, if the diseased propensities of the constitution are active and powerful. It is after an operation that, in my opinion, we are most particularly incited to regulate the constitution, lest the disease should be revived or renewed by its disturbance." Following down in time I have quoted from Walshe, Willard Parker, Sir Astley Cooper, Sir James Paget, Sir Arbuthnot Lane, and others, all of whom, often in very strong language, declare emphatically their belief in the constitutional nature of cancer, many of them attributing it to dietary errors.

The most recent supporters of this view are Dr. Wm. J. Mayo, who in his presidential address before the American Surgical Association alluded to the matter a number of times, in no uncertain language, and Dr. James Ewing, of Cornell University, who in discussing the subject said to me, "Bulkley, I believe you are right, and our laboratory is now devoting itself to metabolic studies in cancer."

I wish that I could give you briefly my experience in following this line of thought and treatment in cancer cases in private practice, during more than thirty years, and in the New York Skin and Cancer Hospital more recently, upon the special request of the Board of Governors, but must refer you to what I have written on the subject. I may say in advance that I am not here to offer any special new form of treatment or any novel or certain cure for cancer. Sadly the rising mortality path of cancer is strewn with the wrecked hopes of multitudes of sufferers who have tried in vain the innumerable "Cancer Cures" brought forth and often vaunted loudly, both by those who were within and those outside of the regular medical profession. Personally I do not believe that any one remedy, whether it be a serum or a pharmaceutical combination, will ever be found which can be spoken of as a "cure for cancer," although some of them have, for a while, seemed to be of service; and the reason for this belief is found in the true nature of the disease itself.

The basic cause of the nutritive disturbance which eventuates in the new growth which we call cancer, being a disordered metabolism, due to many causes, it seems entirely irrational to suppose that any brief course of medication, by injection or otherwise, can alter the deranged metabolism, or affect the organs concerned in nutrition, in such a manner that they will permanently operate correctly, if the dietetic or other errors which induced the malignant new growth are allowed to persist and perpetuate the disorder.

The real problem in regard to the prophylaxis and cure of cancer, therefore, relates to such a modification of the conditions of life as will induce a perfect blood stream which carries on a perfect anabolism and catabolism, resulting in the formation of normal body cells, in place of the heterologous cells of cancer.

Time does not permit of the elaboration of the subject as one could wish, but to make my position clear I must very briefly touch upon some of the principal points involved, which I have presented in my little book. I must first state that I quite agree that chronic irritation has much to do with the localization of the morbid growth, even as local injury will commonly induce the local manifestations of gout, rheumatism, and late syphilis. I also accept the view that probably the malignant growths of cancer take their origin in "embryonic rests," or wrongly placed epithelial elements. But repeated irritation occurs continually without causing cancer, and we are told that "embryonic rests" exist in every one, even in great numbers, while relatively few individuals are affected with cancer.

It would appear, therefore, that something more is necessary, and that is found in the soil in which the "embryonic rest" germinates, or rather in a vitiated blood stream, perverted by a deranged metabolism, which is again dependent upon the erroneous life induced by modern civilization. You all know, undoubtedly, that it has been pretty clearly shown that cancer is a disease of civilization, and that the morbidity and mortality of cancer have increased with its advance, and with its attendant evils of over-indulgence in eating and drinking, with indolence, nerve strain, etc.; these all help to pervert metabolism, and are more or less accountable for disease of the heart, kidneys, and brain, whose steadily rising mortality does not, however, keep pace with that of cancer.

You know also that the errors of diet lie largely along excess of animal protein, coffee, and alcohol, and that cancer mortality is the highest where the *per capita* consumption of these is greatest. You know likewise that cancer is exceedingly rare among herbiverous animals and aborigines who follow a diet largely composed of vegetables, fruits, and cereals; moreover laboratory studies have demonstrated that feeding has the greatest influence on the effect produced by the artificial inoculation of cancer in rats and mice, and that an absolute rice diet almost inhibits its development. The teaching of all this is that in the human being an absolute vegetarian diet plays a very important part both in the prophylaxis against cancer and in its treatment, with or without surgical operation.

But there are other elements connected with the production and control of cancer which must be very briefly alluded to, that you may fully appreciate cancer from a medical standpoint.

Proper and perfect elimination of the waste products of the body is the basis of all good health, and imperfect or deficient elimination is the source of innumerable ills to which different names are given; why the results are different in different individuals one does not know, and perhaps never will know, but careful clinical observation, both in recent and recurrent cancer, shows certain faulty conditions of elimination which are believed to be related to the etiological factors of the disease. These are exhibited in the excretions from the kidneys and the intestines. This is a very large subject, and time does not permit of more than the bare mention of the fact that cancer patients, even in the very early stages are almost uniformly constipated, and that a most careful and repeated volumetric analysis of the urine, in every possible particular, shows that it is rarely if ever that of health. This latter statement does not refer to the presence of albumen or sugar, which are seldom found, but to the many ingredients which represent the ultimate result of tissue metabolism.

The medical treatment of cancer, therefore, opens a very wide field of observation and study, and the applied therapeutics in different cases may vary very widely. But with the steady and persistent aim and effort to rectify metabolic errors, and properly correct disorders of elimination by diet, hygiene, and proper medication, I know that much impression can be made upon the morbidity and mortality of cancer, as I have witnessed in private practice for forty years, in large numbers of cases.

My time is up and I must stop; but I can not close without urging you to accept my views, so far at least as to study carefully your cancer patient from a medical standpoint, and not think that the only possible hope is in the surgical removal of the *product* or *result* of a systemic condition, which in the end carries off a very large proportion of its victims, under the prevailing views in regard to the disease. Remember also that the earlier, the more earnestly, faithfully and intelligently proper medical measures are carried out, the more hope and expectation there is of checking the disordered blood and cell action which so commonly eventuate in death.

GLENARD'S DISEASE.*

By BRADFORD C. LOVELAND, A.M., M.D.,
SYRACUSE, N. Y.

GLENARD'S disease, abdominal, or visceral ptosis, is no new disorder, and yet the last word has not been spoken upon it, and may not be for a long time. In fact, like the poor, it is always with us, and this is not intended as a pun, even if many of these patients are quite emaciated.

The symptom complex was described a number of years ago, and while I shall consider it as a condition rather than a disease, I do not wish to overlook the complex character of its symptoms, or its fundamental causes, and I am persuaded that only a feature or two are recognized by the physician, and that feature is dictated more by the point of view from which the physician sees the patient than the importance of the feature in question.

It is my purpose to review from the standpoint of experience and observation this condition, and to briefly outline what has been in my hands a successful method of treatment in many cases which had survived often long periods of treatment of various sorts, with at best indifferent results, before they came under the régime referred to.

First then the condition: A poorly nourished patient (not necessarily anaemic), usually under weight, muddy complexion, with rings under the eyes, complains of tiring easily, headache, gas in stomach after eating or even while eating. Appetite poor, or if hungry is satisfied before a reasonable amount of food has been eaten, complains of cold extremities, especially at night, usually constipated bowels and on inquiry we will often find insufficient action of kidneys, sleep broken and dreamy and to these symptoms are often added palpitation or tachycardia, depression, a mental state of apprehension as of some impending evil and not infrequently in the case of mothers, a feeling as if they could not stand the prattle of the children.

Diagnosis.—It should not be necessary to say that a careful examination of some sort is absolutely necessary if this condition is to be recognized, even though the symptoms and signs observed in a casual way may point in this direction, but I am sure that many of these cases are all about us complaining now and then to a physician when their burden becomes unbearable, but impressing the physician only sufficiently to prompt the suggestion of a vacation for rest, and perhaps a tonic or laxative, nothing further; and little wonder that such a patient becomes discouraged in the effort to get relief and for a time gives up treatment, only to be forced to another trial when she can no longer bear the constant distress.

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* Read before the Syracuse Academy of Medicine, May 18, 1915.

There are more ways than one to get the information we need about the patient's physical condition. The X-ray bismuth test can outline the stomach or the colon very clearly, but is open to some possible errors even in these functional cases, first due to the increased peristalsis incident to the laxatives given frequently to prepare the intestinal tract for the bismuth paste and, second, due to the mechanical result of the weight of the bismuth paste ingested, but withal may in a good measure be depended upon, although an X-ray picture taken as it usually is with the patient in an erect posture, conveys a different idea as to the shape of the stomach and the sharp angles of the colon, than one gets from the percussion methods with the patient lying on the back.

It may be borne in mind that all our anatomical plates have been made from cadavers lying flat and I have no doubt that they do not represent the relations of the organs as they would appear in a normal body in the erect position.

The late Professor Ford, of the University of Michigan, once told me that in dissecting over 2,000 subjects, he had never found a misplaced kidney, yet we are all aware that a displaced kidney is of frequent occurrence during life.

The tube is rarely necessary for diagnosis in these cases and should *never* be used for any other purpose except diagnosis and the acute necessity of relieving the stomach of a poisonous content.

The method most simple, most generally available and sufficiently accurate for almost all purposes, combines inspection of the abdomen in the uncovered state with the patient in the erect and prone position, which will often show a flat abdomen in the prone position and occasionally we will find the walls so thin that the peristaltic movements may be observed and some of the viscera outlined by the ordinary vision, and a pendulous abdomen with a depression at the epigastrium, when the patient is erect.

The next step is palpation, which will help locate tender spots and eliminate to quite an extent the presence of new growths, will give us the location and size of the kidneys if displaced, and often give much information as to the stagnation of foecal matter in the colon. But most valuable, perhaps, is percussion aided by auscultation or auscultatory percussion. This method will give the outline of the stomach, liver, spleen and often the colon, besides the interesting and helpful knowledge of the heart and lung conditions, and quite as constant results are obtained as with the bismuth test, though the stomach does not assume quite so much of the boot shape.

The result of this examination will eliminate organic disease, recognize the dilated and sagged stomach often below the umbilicus, a movable kidney, a colon carried down by the lower border of the stomach, the soft, flabby, abdominal muscles and above all the neurasthenic foundation, which in most cases is inborn. This complete physical inventory not only furnishes a diagnosis of the condition, but a basis for treatment.

Treatment.—Historically, the treatment has passed through many phases based upon as many theories or conceptions. The aim has been to correct, relieve, or support principally the sagged stomach. A once popular method was to feed the patient a small amount of concentrated food, meat and bread largely, and a small amount of water, hoping the stomach would contract to fit its contents.

Not a few have recommended gastro-enterostomy and making a reef in the stomach, stitching the kidney back or removing a portion of the colon, some or all of these.

More yet have apparently despaired of cure and adopted either a supporting corset, or some form of a belt, being content to support the ptosed organs by an artificial method. None of these have been satisfactory for none have attacked the condition from the direction of its causes.

Etiology.—The fundamental cause of abdominal ptosis, or at least the most frequent cause is heredity. That is, most of these patients were born with a poor nervous endowment, and if we take up the causes in the order of the development or growth of the patient as well as the frequency, we must recognize next rapid eating and over filling the stomach during early childhood.

I believe that abdominal ptosis, or at least gastroptosis, is very frequent in children from the fifth to the twelfth year, usually unrecognized and generally coming back to normal as the child takes up more athletic exercise or an occupation which develops stronger abdominal muscles.

Next in order comes the period of adolescence, when the young person is acquiring the sedentary habit and developing latent neurasthenia and upsetting digestion in the endeavor to keep pace with the high school hours and examinations.

It is during this period when the nervous mettle of these poorly endowed, though often brilliant persons, receives its first severe strain, and not very infrequently it proves unable to meet it. They drop out of school for a term or two, going back feeling well, but simply because the strain has been taken away, but there is no more endurance than before. A little later another term is dropped, or the whole course is given up.

Next comes the period when the man takes up the responsibility of a business or profession, full of ambition, and again finds the weight of work and worry too great for the physical endurance, or in the case of the woman the cares of the home, and especially the strain of childbearing bring about a similar result, in this case added to by the mechanical distension of the abdomen, which does not return to the normal because the mother thinks she should be up and caring for her baby as soon as other mothers, not realizing her poor physical endowment, and consequently doing little or nothing to improve it.

Now the distresses reach a point which finally drives the patient to the physician, with varying results.

Treatment.—The treatment then which will prove successful must take into consideration the nervous constitution and the inefficient muscular support brought out by the physcial inventory, and must aim to increase the physical endowment and the abdominal muscular strength, and I will outline the treatment under the heads of Dietetic, Hygienic, including Electrical, and Medicinal; hence you will see it involves a system rather than single idea.

Dietetic.—As most of these patients are thin and weak as well, a more or less forced diet is necessary, and because the appetite cannot be trusted as a guide, each meal, and lunches if required, should be ordered by the physician, giving specific attention to every detail, amount, variety of food and drink, and the time of each feeding. To make clear what I mean I will give a sample prescription of diet for a typical patient, five feet five inches high, weighing ninety-five pounds, which is about an average type, and who has never weighed more than 105 pounds:

Breakfast: 8 A. M. Soft boiled or poached egg, a slice of bread or a gem. A dish of oatmeal mush or crushed wheat, well cooked, salted, but not sweetened, milk on cereal, and close the meal with one full grass of milk and a half glass of water, often better mixed.

At 10.30 A. M.: Lunch of one glass of milk, a raw egg and a half glass of water. Egg may be taken in the milk, or better still, swallowed just as it comes from the shell, and the milk taken afterward.

Dinner: 1 P. M. One lamb chop or a similar amount of beef or chicken. Mashed or boiled potatoes, peas or string beans. One slice of bread. Tapioca, custard, plain rice pudding, blanc mange, apple sauce, peaches or pears, ripe olives, and one glass of milk, with a half glass of water to finish up with.

Lunch: 3.30 P. M. Same as at 10.30 A. M.

6 P. M.: Supper much the same as breakfast, except that a dry cereal like shredded wheat or maple flake may be used. 9 P. M.: Milk and egg with water the same as other lunches. One glass of water, hot or cold as desired, half hour before each meal, and one glass of water about an hour after each meal.

This diet may produce a feeling of distension for a short time after each meal at first, due to the increased intra-gastric pressure induced, but this will force the absorption of the gas which up to the meal time has lain passively in the stomach, and will insure a gain of one and one-half or two pounds per week in the patient.

After a few days the feeling of distension after eating will disappear and the constipated habit will also be relieved.

Hygienic and Electrical.—A cool sponge bath over the body or at least over the abdomen on rising, followed by brisk rubbing and calisthenics as follows: Erect posture, flex and extend arms, flex and extend legs. Bend forward and backward. Bend one side, then the other. Squat down and get up. Lie down, and elevate one limb and then the other as far as possible with the knees straight. Deep breathing, beginning with lungs emptied and hands down at sides. Inhale as the arms are reached way beyond the head as far as possible. Exhale as hands are replaced at sides. Three or four exercises each, increasing one each after patient gets so the above is not tiresome.

Walk twice daily in the open air to such extent as patient can stand, say a half mile, and an hour rest after dinner lying down.

The electrical treatment suited to this case is continuous current three or four milliamperes positive electrode at occiput and slowly moved down to or a little below a line drawn between the lower points of the shoulder blades or scapulæ. Negative electrode to the base of the spine. Time, three or four minutes. Now with the negative electrode in the same place change to the interrupted or Faradic current, applying the other electrode over the abdomen from right to left in the direction of the peristaltic waves. Strength sufficient to make positive muscular contractions whenever the electrode passes over the contractile points. Time, six or eight minutes. Every second day.

Medicinal Treatment.—This is not so important as the regime already described, but frequently some mild stimulation of the liver and tonic for the stomach and bowels is helpful, so we will give this average case Hydrarg. protoiodide ⅛th grain before each meal for a while, and a tablet of extract nux vomica ¼ grain, rhubarb and soda of each one grain after each meal.

The results to be expected from these measures are a gain of one to two pounds in weight per week. A gradual improvement in the bowel movements, a feeling of improvement, better rest nights, and a gain in strength, in proportion, and in from two to three weeks a marked change for the better will occur in the ptosis, and a decided increase in the strength of the abdominal muscles.

It is not only safe to make such a prediction, but it is a wise thing to tell the patient what may be expected, as it helps to secure co-operation.

Then, too, when these prophesies begin to be fulfilled, your patient's hope and courage and determination grow apace.

I will only lengthen this paper sufficiently to refer to two or three cases which are fair illustrations of what can be done for these chronic sufferers.

Mrs. W. D. N., thirty-two years old, a chronic invalid for thirteen years, mother of one child ten years old. Came to my office November 30, 1900. She suffered from weakness, headache, constipation, scanty and painful menstruation, tachycardia or palpitation, and worst of all a feeling of apprehension of sudden death, which so controlled her that she dared not stay alone in the house much less go out alone.

Examination showed her stomach to reach a point a hand width below the navel, right kidney palpable just above the pelvic brim, colon festooned and uterus displaced downward and backward.

She was treated according to the plan already described, with the result that her symptoms disappeared, and on March 2, 1901, my diagram showed her stomach and kidney about in their normal position. On December 15, 1911, she came to see me again for neuritis in her arm, and I requested an examination of her abdominal organs for comparison with the earlier diagram. This showed her organs in normal position as when she left my care in 1901, and she said she had had no symptoms referable to her old trouble since she left my care.

This case was reported more fully in a paper read in 1911 at the New York State Medical Society, entitled, "After ten years: a record of experiences with abdominal ptosis."

Another case in which the diagnosis of the stomach position was confirmed by observation on the operating table may be reported.

Mrs. C. D. S. came under my care March 30, 1903. I will not go into the details of all her symptoms, which were much like I have described as a typical case, but my examination showed her stomach as low as the brim of the pelvis, and a prolapsed uterus badly lacerated from child birth (she had two children), and on the advice of a surgeon she went into the Women's and Children's Hospital, October 6, 1903, and was operated for repair of the cervix and ventral suspension of the uterus.

At this operation her stomach presented in the wound and it was difficult even in the Trendelenburg position to keep it back enough to have the field free for the suspension operation.

The operation was a success from the surgical standpoint, as the patient recovered. A rather protracted course of treatment was required to get the patient in good condition.

Another operation for hysterectomy in 1908 showed a practically normal position of the stomach, and with ups and downs due to a very strenuous life, she had been and is pretty well as compared to what she was for years previous to 1903.

Another case briefly reported will be sufficient to illustrate what I have said in this paper.

Case 3.—Mrs. C. C. D. Consulted me November 25, 1908. She was married, mother of one child eleven years of age, of good heredity. She dates her illness to a nervous breakdown ten years ago from which she had never recovered. She complained of gas, palpitation so that she frequently had to sit up at night for a while. Of headaches, constipation, numbness in limbs and arms, weakness, etc.

Examination showed the lower border of the stomach about two inches below the navel, the right kidney displaced downward about four inches, and the other evidences of general ptosis of the abdominal contents, and weight one hundred and three pounds.

The treatment combined the regime described, and on February 1, 1909, my diagram showed great improvement in all the conditions, including the position of the stomach, weight 109½ pounds. The following September 23d she showed weight 120¾ pounds and the stomach about in normal position.

I have known the patient and cared for her when she needed medical attention since that time, and to the present have only been asked to prescribe for occasional or transitory conditions.

The prescribing of such a regime may seem easy, but its success depends on experience and the courage and conviction to secure the co-operation of the patient, and the physician must see the patient frequently enough to keep up his co-operation and courage until he can see results. Then things will move on more smoothly and less personal attention will be required.

ACCIDENTS AND INJURIES OF THE EYES—THEIR PREVENTION AND TREATMENT.*

By F. PARK LEWIS, M.D., F.A.C.S.,
BUFFALO, N. Y.

I WAS impressed some time since with the disproportionately large number of serious accidents and injuries of the eyes which I found coming under my observation. I asked my secretary, therefore, to go over my records for the past year, noting all cases of this nature which had been of a serious character, with the conditions under which the accidents occurred, and to note whether under other circumstances they might have been prevented. I found that, excluding trifling cases, such as, foreign bodies in the cornea, superficial scratches, etc., the following cases had come under my observation.

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* Read at the Annual Meeting of the Eighth District Branch of the Medical Society of the State of New York, at Olean, September 21, 1915.

It will be evident that these were in large measure the result of gross negligence and carelessness. So many serious disasters, with a life long of wretchedness and limitation of opportunity following, led me to the preparation of this paper, in the hope that a wider knowledge of the prevalence of such conditions might lead to more effective measures for their prevention.

SERIOUS EYE CASES OBSERVED DURING 1914 AND 1915.

Name, Occupation and Age	*Place and Date*	*Injury and Cause*	*Remarks*
G. R.—46 yrs. —Glazier.	Buffalo, N. Y. Sept. 12, 1914.	Eye cut by shattered glass while breaking pane. Cut extending through the cornea, iris and lens, causing cataract.	Eye ball saved, sight lost.
A. C.—12 yrs. —School.	Niagara Falls, N. Y. Nov. 5, 1914.	Struck in eye by work bag thrown by another child. Dislocation of lens with cataract, and partial rupture of the sclera.	Eye ball saved, light perception.
Dr. E. H. W.—56 yrs.—Retired Physician.	St. Catharines, Ont. Nov. 10, 1914.	Struck in right eye by flying splinter while chopping wood. Paralysis of accommodation, concussion of retina. Sight reduced to 2/200. Subsequently improved to 2/100.	Eye retained, but sight practically lost.
R. W. W.—34 yrs. —Machinist.	Silver Creek, N.Y. Oct. 14, 1914.	Piece of steel flew in eye while turning lathe. Case seen in consultation. Steel had been removed, leaving opacity of lens and adhesion of pupilary margin.	Vision reduced to one-half. Would not be useful vision if it were only eye remaining.
R. T.—40 yrs. —Stone cutter.	Buffalo, N. Y. May 18, 1914.	Struck in right eye by chip from stone while working. Right lens cataractous. Radiogram shows stone still in eye. Eye quiet. No useful vision.	Eye still dangerous to safety of left.
M. C.—4 yrs.	Welland, Ont. Dec. 1, 1914.	Cut in eye while playing with a sharp penknife; cataract resulting, which was treated in Hamilton. Eye became glaucomatous. Large iredectomy.	Eye ball saved. Sight had already been destroyed.
J. T.—38 yrs. —Laborer.	St. Catharines, Ont., Can. Sept., 1912. Date of Consultation, 2/27/15.	While working at a drill, struck in eye by piece of steel. Degeneration of the tissues of eye ball. F. B. still in eye. Light perception.	Removal of eye advised.
F. T.—36 yrs. —Teamster.	Niagara Falls, N. Y. May 2, 1915.	Struck in eye by piece of glass. Leucoma. Adherens with partial cataract. Plastic bands extending from cornea including iris and lens.	No light perception.
W. T.—39 yrs. —Stone cutter.	Rochester, N. Y. July 5, 1915.	Piece of steel in eye since 1901. Luetic history. Eye now suffering from result of blow. Imperfect light perception.	Eye should be removed.
O. S.—63 yrs.— General man in factory	Portville, N. Y. April 17, 1915.	Struck in eye by large piece of steel while cutting bolt with a cold chisel. Was treated for the injury.	Eye ball saved. Sight lost.
A. L.—28 yrs. —Farmer.	Collins Centre, N. Y. June 25, 1915.	Cornea badly burned by premature explosion of a cartridge which he endeavored to jam in his gun. Wound healed, leaving scar with defective vision.	
J. K.—4 yrs.	Perrysburg, N. Y. Jan. 4, 1915.	While cutting string knife slipped, cutting cornea, involving lens.	Recovery, with absorption of lens and imperfect sight.
C. I.—48 yrs. —Labor helper.	Lockport, N. Y. March 1, 1915.	Struck in eye by piece of coal which he was breaking with his hammer. Extensive ulceration of the cornea following which was successfully treated by Dr. Ringueberg by transplantation of conjunctiva.	Eye ball saved, but without useful vision.
Wm. H.—24 yrs. —N. Y. C. R. R.	Buffalo, N. Y. July, 21, 1915.	Was looking up while man above was chipping a spike. Piece came suddenly off and fell six or seven feet striking eye.	Recovered with good sight.

Name, Occupation and Age	*Place and Date*	*Injury and Cause*	*Remarks*
L. H.—28 yrs. —Assistant Boiler Maker.	N. Y. C. R. R. Feb. 27, 1915. Buffalo.	While welding two pieces of hot iron together, hot iron flew in eye, burning the cornea. Burn was superficial.	Patient recovered without loss of sight.
S. N.—36 yrs. —Carpenter.	N. Y. C. R. R. Jan. 25, 1915. Buffalo.	While hammering iron, piece flew in the eye causing contusion of eye ball.	Recovered with good sight.
T. N.—43 yrs. —Laborer.	N. Y. C. R. R. May 31, 1915, Depew, N. Y.	Foreign body in eye. Removed by local surgeon. Neglected by patient. Ulcer developing, leaving corneal scar.	Slight defect in vision.
W. O.—43 yrs. —Locomotive Plumber.	Corning, N. Y. Jan., 1914.	While working under table plate, hammering, speck flew in eye. Has been gradually losing sight in both eyes since. Detachment of the retina, with floating opacities in the vitreous. Practical loss of sight.	Injury had nothing to do with the loss of sight.
B. J. O. L.—26 yrs. —Electrician.	Buffalo, N. Y. Nov., 1914.	Had foreign body taken out by fellow workman. Infection followed. Was under care of a number of doctors. Ulcer healed, leaving small scar.	Probably constitutional.
G. J. G.—21 yrs. —Salesman.	Buffalo, N. Y. April 6, 1915.	Struck in eye by suit case which fell from shelf. Considerable contusion.	Recovered without loss of sight.
B. P.—39 yrs. —Farmer.	Irving, N. Y. July 31, 1915.	Struck in eye when a boy by a whip lash. Had been operated for resultant cataract. Glaucoma.	No useful vision.
J. P.—48 yrs. —Foundryman.	Niagara Falls, N. Y. Sept. 4, 1914.	Burned from aluminum. Adhesion of the lids to the eye ball. Available portion of the cornea covered.	No useful vision.
A. B. F.—36 yrs. —Machinist.	Welland, Ont. March, 1915.	Rupture of the sclera from foreign body striking the eye. Iridectomy.	Half vision preserved.
M. S.—8 yrs. —School.	Warsaw, N. Y. April 5, 1915.	Struck in eye by a b.b. shot from an air gun. Cataract absorption.	
M. E. D.—24 yrs. —Machinist.	Belmont, N. Y. Nov., 1913. Date of Consultation 7/28/14.	Foreign body in eye for six months which was undiscovered. Located by radiogram. Removed with preservation of eye ball.	No useful vision.
F. D.—40 yrs. —N. Y. C. R. R.	Buffalo, N. Y. July 20, 1915.	Foreign body in eye. Removed by local physician. Self treated, leaving corneal scar. Permanent defect in vision.	
J. D.—21 yrs. —Laborer.	Niagara Falls, N. Y. July 4, 1915.	The explosion in eye of giant firecracker. Systitis cataract. Iridectomy.	No useful vision.
C. L.—12 yrs. —School.	Buffalo, N. Y. June 29, 1915.	Consultation with Dr. L. M. Francis. Struck with dead eye attached to rope when accidently swung by playmate. Rupture of sclera, prolapse of iris.	Subsequent enucleation.
J. M. L.—42 yrs. —Laborer.	Buffalo, N. Y. Standard Oil Co. Aug. 2, 1915.	Burned in face by breaking of glass tank, containing hot sulphuric acid. Burn of the first degree covered entire face. Burn of lids and epithelium of cornea.	Eye saved by goggles which he was wearing. No loss of vision.
J. E.—10 yrs. —School.	Hornell, N. Y. Oct. 6, 1914.	Blow from stone held in boy's hand severely injured the sclera. Treated by oculist in an endeavor to save eye ball. Two weeks later sympathetic inflammation developed in the fellow eye. The hurt eye was promptly enucleated, but inflammation continued. Vision now reduced to 20/200.	Boy is entering School for the Blind at Batavia.
C. W. M.—37 yrs. —Plumber.	Buffalo, N. Y. Sept., 1915. Consultation.	While trying to find a leak in a copper lavatory ball by holding it over the flame his attention was diverted, and the ball, in which there was some water, exploded, rupturing eye.	Loss of sight. Possible enucleation later.
F. S.—60 yrs. —Carpenter.	Corfu, N. Y. Sept. 20, 1915. Consultation, Dr. E. C. Smith.	Fell from ladder striking back of head. Had saw in hand, and the handle probably struck the eye. Ball was ruptured. Wound about ¾-in. long.	Immediate enucleation.

The reason for the physician and surgeon in civilized life is that he might correct the blunders and repair the wrecks of humanity. In the general stock taking of efficiency methods, to the necessity of which the civilized world seems to be slowly awakening, it has become evident that the human machine has a large potential as well as an actual value. Men and women when they have no longer any workable possibilities can not be thrown in the scrap heap unless their value is completely destroyed, in which case their productive power for others is also lost. They become burdens, which must be carried, impeding the progress of others—thereby lowering the effectiveness of the group to which they belong, and that of the activities of life everywhere.

This intimate relationship and interdependence of all men upon each other has found expression in the readiness on the part of the state to assume the responsibility for the loss of life, or of the effectiveness of an individual, when this occurs in the performance of his daily avocations. The state in allowing a compensation award recognizes the fact that if life remains, even this remnant of a man must be fed and clothed, or if he is killed that those who have been dependent on his labor must still be supported, for it is not exacted that even reasonable precautions be taken for his own safety or protection. But as Carlyle caustically remarked many years ago: "There are so and so many millions of people in America, mostly fools!" It becomes imperatively necessary, especially in the case of people whose work requires little thought, and in the case of children, and especially in the case of everybody else that safeguards be thrown about them in the employment of such hazardous employment as experience has shown to result in injury to themselves or to others.

In the ordinary routine of daily life an occasional accident makes little impression even upon those with whom the victim has been closely associated. Our responses are singularly dull and slow. The average man or woman is shocked on witnessing an accident, but ordinarily he draws no conclusions from it which would be of service in preventing the repetition of a like tragedy. In the back of his mind he looks upon this as a unique occurrence. It never happened to him or to any of his friends before, and in all probability it never will again. He thereby puts it out of his mind, and draws no helpful conclusions from it which might serve as a protection in the future. It is, however, by the aggregation of many such individual happenings that a series of disasters of appalling magnitude are ultimately accumulated. We find that in the ordinary routine of life had protective measures been generously employed and reasonable care exercised, their cost would have been infinitely small in comparison with the saving of life and limb—to say nothing of the money compensation which they would represent.

It seems to be worth while, therefore, for us to determine the existing facts concerning the accidents and injuries seriously affecting sight, because it is difficult to conceive of any more deplorable misfortune that can come to a human being than that of blindness—none which more completely shuts him out from the activities of life—or which is more inevitably followed by a condition of wretchedness and misery. When sight is lost in adult life or middle age it is with the greatest difficulty that social and economic adjustments are re-established. It, therefore, in any large number of cases, it can be shown that by the adoption of reasonable precaution, or of measures by which such calamities might be averted, even aside from the humanitarian question involved, it becomes an obligation, resting upon all of us who can in any degree help to do what we can to protect those who, from ignorance or lack of opportunity, are unable to care for themselves.

It is undoubtedly the common belief, even of surgeons, that a large proportion of the accidents to the eyes are unavoidable.

In order to get a few basic facts, and without any intention of thoroughly canvassing the subject, I wrote to the Medical Adviser of the New York State Compensation Commission, asking him how many cases of loss of sight had been presented to the commission since its origin, and what proportion of them might, in his judgment, have been prevented by the use of suitable protective devices and the exercise of reasonable care. In a letter received from Dr. Loughran, dated September 7th, he says:

"In the State Fund we have had about fifteen cases where sight has been lost in one or both eyes, and as we insure about 10 per cent of all the employers in the state, I should think that it was safe to say that the total number of cases would be about 150; and of these 150 cases, I would estimate that 50 per cent could have been avoided had the applicants worn goggles; that is, half of them, on account of their occupations, should have worn goggles."

He also goes on to say: "That the State Fund, through its Safety Inspectors, is insisting that employers furnish goggles to men who are engaged in harzardous occupations—grinders, stone cutters, etc." Acetylene welders are advised to use properly tinted glasses. "Personally, as soon as an eye accident is reported, I at once write to the employer, showing the necessity for the use of goggles, and pointing out that unless he furnishes, free to the employees, properly ground and fitted goggles, and instructs them in the necessity of their use, he is morally responsible for any injury that may occur. I have had the heartiest cooperation of all of the employers, and I believe that many of the men are now protected, who were not so a few months ago."

I also wrote to about twenty-five of my personal friends, who are engaged in ophthalmic practice, asking them the following questions:

1. How many cases have you seen during the past year, up to the present date, in which sight has been lowered by accidents or injuries which might in any way have been prevented?
2. How many in which sight was lost in one eye—in both?
3. Will you describe briefly the character of the various accidents and by what means they might have been avoided, or better results as to sight obtained?
4. Were protective devices generally used as far as you know in factories and about machinery in those accidents to the eyes which have come under your notice?
5. Have you any suggestions as to immediate care on the part of the general physician whom the injured first consult?

Let me quote a few of the opinions which have come from well-known eye surgeons:

Dr. Decot, of Buffalo, who sees a large number of eye accidents, says: "Better results would have been obtained, first, had the physician not tried to do so much for the case and sent it to a specialist sooner; second, had the patient been instructed as to the dangers of infection." and then he adds, "That the general practitioner has not had the experience, nor has he the instruments for careful eye work. He should, therefore, refrain from poking at the case until the wound is three or four times the original lesion. Many minor cases have come to me after such treatment, and it is only by the best of care that the cases did not turn out major ones. It is very noticeable even in the removal of foreign bodies from the cornea, often the cornea is injured extremely, and infection or ulceration results, whereas if done properly the man would loose but a few hours work."

Dr. John D. Flagg, of Buffalo, reports fourteen cases which he has seen during the past year. Of these fourteen cases of avoidable accidents sight was partially lost in eight and totally lost in six. Among the causes cited in these cases was in one the accidental use of a 22 per cent solution of nitrate of silver as a prophylactic against ophthalmia neonatorum. It resulted in corneal scar with practical blindness. Two traumatic purulent ulcers, undoubtedly pneumococcic infection. Healed with corneal scar, material loss of sight. One a Fourth of July explosion. One case of a piece of steel in the lens. In one a foreign body which left a cloud with diminished vision. One a thorn penetrated the eye destroying the sight completely. Dr. Flagg suggests, that when the attending physician sees that the case is a serious one he should at once send the patient to a specialist. He should be careful to use antiseptics for his hands and instruments, and that his instruments should be sharp.

Dr. Kirkendall, of Ithaca, on the same subject, says: "The greatest point in the question of eye injuries is their immediate and proper treatment. A 1½ per cent solution of atropine mixed with castor oil, which never deteriorates, should be at hand. It is always ready for use and can be dropped in the eye with a clean match or a sterilized toothpick. It dilates the pupil and is an antiseptic."

"I believe," he adds, "that 10 per cent of the eyes that are lost come to an oculist too late for relief."

Dr. Case, of Elmira, goes still further. He says, "My experience is that as a rule the general practitioner can do but little. He makes very bungling work even at removing foreign bodies. I think if he would merely alleviate suffering by cocaine, and, if necessary, an opiate, and put on an aseptic bandage, he will have done his duty."

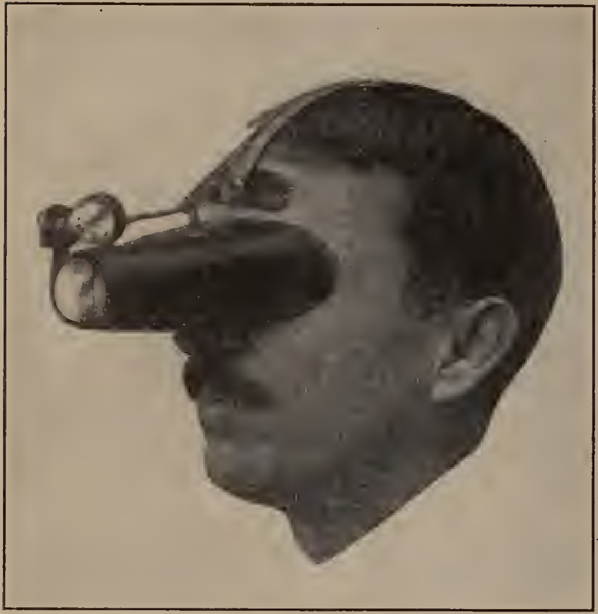
In the case of eight severe eye accidents, in three of which an eye was lost, Dr. J. R. Sackrider, of Jamestown, found that all of these cases had in their work been hit by flying particles, which had abraded the cornea, and the abraded surface had become infected. In all of these cases from six days to two weeks had elapsed between the time of the injury and going to the physician for medical attention. In three cases pus was in the anterior chamber in quantity before they were seen by a physician. *In the above cases, the fault,* he says, *was entirely with the individual as they did not seek aid until it was too late.*

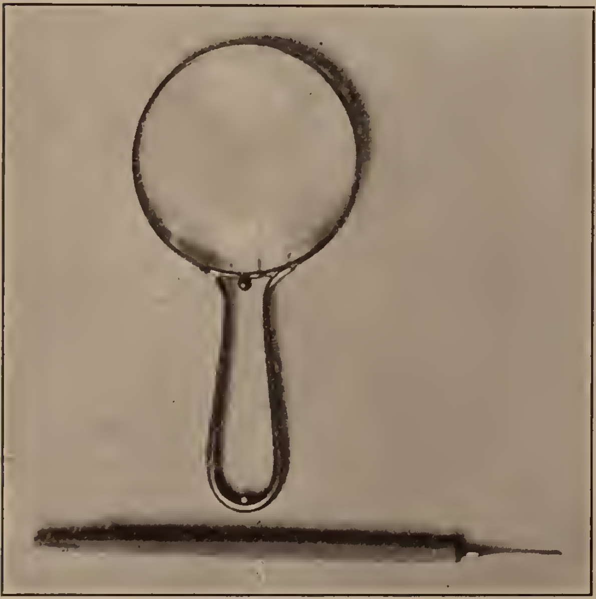
Dr. Bissell, of Rochester, thinks that since the Compensation Act became effective the men receive much more prompt and better attention.

Dr. B. H. Grove, of Buffalo, says that the immediate care of an injured eye should consist of thorough cleansing, the use of cocaine and atropine, an antiseptic bandage, and a speedy reference to some one who understands the care of the eye. The experiences and recommendations of others were along singularly similar lines.

I do not myself believe that it is not fully within the power of any surgeon to remove a foreign body from the eye completely and skillfully, and without undue damage to the tissues. It is essential only that he shall possess the simple appliances which are necessary, and a firm and gentle hand.

These consist of a lens by which the light should be thrown obliquely through the cornea, thereby making any foreign body stand clearly in view; a spud, which should be made surgically clean before it is used, and a loup or binocular lens which is held before the eyes in a frame, and which gives amplification of four or five diameters. It is possible with this to see the smallest particle of foreign matter in the eye, and to remove it in its entirety.





(1) A Magnifying Loupe to see the foreign body clearly, (2) A Double Convex Lens to focus the light obliquely on the cornea, (3) and a Spud, which has been sterilized by quickly passing it through a flame, should enable any physician with a steady hand to remove a foreign body without undue injury to the eye.

If there is any doubt in the mind of the surgeon as to his ability to do this he should immediately place his patient under the care of some one who can. It is unwise for any one unaccustomed to treat injuries of the eyes to attempt to operate upon an accident of a major character.

I also made inquiries of a large number of employers of labor, asking them the following questions:

Are protective devices used on your machinery where practicable, and if so, of what nature?

Is any effort made to secure the use of goggles in work in which the eyes are in danger from flying particles from emery wheel or elsewhere?

Are the men allowed to give first aid to an injured eye, or is skilled service insisted upon?

Are prompt reports of eye injuries, even when of a minor character, made at the office, and are the results followed up and recorded?

Are eye accidents frequent? Can you give any suggestions as to measures for their prevention?

Where protective devices and goggles have been used, have you found a material lessening in the number of eye injuries?

Is the work of the employee so adequately lighted that accidents are not liable to occur?

Is protection employed where molten metal or corrosive chemicals are used in preventing them splashing in the face and eyes?

In a letter received from the Efficiency Engineer, Mr. J. P. Jordan, of the Gould Coupler Works, he says: "The use of goggles decreased the number of eye injuries to a very wonderful extent. The writer had a comparison made about two years ago before he left this company, and his recollection is that it showed a decrease of nearly 75 per cent in reported eye accidents."

One of the most effectively managed large plants which has come under my observation is that of the Pierce-Arrow Motor Car Co., Mr. Thomas, Assistant General Manager and General Factory Superintendent, writes concerning the measures used in this company. He says: "We used to have a good many cases of ulceration of the cornea due to emery-wheel chips entering the eyes of the workmen who were grinding tools on emery wheels, but we make it absolutely compulsory for such men to wear goggles, and there has been a marked decrease in the number of accidents. Wherever any operation is in progress which might be injurious to the eyes, we do everything in our power to induce the men to wear goggles; and all through the factory we use screens wherever necessary to prevent chips flying in the face of the workman. With regard to first aid, we absolutely prohibit any workman giving aid to eye or other injuries, and the injured man is made to go at once to our First Aid Department, where we have a resident medical man and two assistants, who are entirely capable of taking care of any injuries, minor or otherwise."

From a limited number of inquiries of this kind it has become evident that protective measures are being employed in most of the large plants. The men are advised as to how they should be used, and personal efforts are employed in preventing the men from suffering from injuries.

In smaller plants, however, this is not true. They have not yet realized that the expenditure of a small amount of money and a slight amount of time in seeing that the plant is well equipped with protective devices, and the men advised as to their use, is good business. It lowers the rate of their insurance and makes for better workmanship.

Accidents from molten metal splashing in the face and eyes, are frequently due to the path along which the molten metal must be carried being too narrow. The law requires that these pathways have a width of at least eighteen inches. In many factories they are much less. Men are obliged often to carry molten metal to the weight of two hundred feet through these narrow ways. It must also be carried in great haste, as the metal so quickly cools. Hence it happens that men stumble and the metal is splashed upon them. Inspectors are indifferent in enforcing the law, and hence the frequency of accidents which result in damage to life and limb, and when the face is involved, to the loss of sight.

Another of the common accidents is due to putting the hot metal into moulds in which some water has gathered. The sudden development of vapor causes an explosion, and the burning fluid is splashed in the face of those who are within reach.

Another common cause of accidents is the sudden condensation of the atmosphere in the foundry causing a thick blinding vapor. This, I am told, is due to opening the doors and windows and letting the cold air in at the time the metal is to be poured. The sudden admission of cold air into the superheated atmosphere causes a rapid condensation, and an obscuring cloud. This can be avoided by keeping the doors and windows closed during the short time, only thirty or forty minutes, for pouring the heated metal.

I have also summarized the result of all the eye injuries which have come under my own observation in the first six months of nineteen hundred and fifteen, and from these results I have endeavored to draw conclusions as to the measures which might be effectively taken to increase the efficiency of our protective measures, and to limit the number of these deplorable and costly accidents in the future.

Among the accidents which most commonly occur are those which happen to adults in the performance of their usual avocations. In the series of my own cases of thirty, which occurred during the past year, six, or twenty per cent, were in children.

In this connection it is interesting to note that non-industrial injuries of the eye according to Henry Copley Greene, who has made an interesting study of 2,330 hospital cases of injury and diseases of the eye, found that fifteen and one-tenth per cent were those of non-industrial character. They were responsible for four of the 120 cases of practical blindness in the better eye resulting from single causes. After giving many important statistical facts, he continues: "From the foregoing data it appears that non-industrial injuries to the eye are of the first importance, both socially and economically. Outranking those industrial injuries of which we hear so much, they are the most frequent of eye difficulties treated in the three typical hospitals, whose records have been considered. Their cost, therefore, is heavy, not only to these institutions, but to the patients themselves. The loss in actual wages is especially great because a very large proportion, 83 per cent, of the patients are men and boys; and this loss is further emphasized by the fact that the patients are so often young persons whose handicap will continue throughout their working life."

It is not only the uneducated, or those of untrained mind who fail to picture to themselves the deplorable results of their own negligence or carelessness,—almost equally reprehensible in this regard are those of the highest intelligence and of the keenest minds. To all alike the possibility of individual injury is so remote that it is ignored until it is too late.

The mother, whose child's welfare is more dear to her than her own life, will allow her two year old baby to play with a buttonhook. The aimless hands catch the point in the little one's eye, and the lid and the eye muscles are dragged off in consequence, leaving a deformity which no skill can wholly repair. Another little toddler stumbles and falls with sharp scissors in her hand,—the pointed blade punctures the eye and sight is destroyed. A group of children are playing with pointed sticks. One pokes the other in the eye and ruptures the globe. Boys are playing the game called "One old cat" in which a piece of wood is pointed in the form of a double cone. This is struck on the end so it flies through the air. It strikes a playfellow's eye with the usual disastrous result. A young man, stooping to pick up something from the floor in the dark, strikes his eye on the back of a chair, and enucleation of the eye follows. A boy is sharpening his pencil toward himself. The knife slips, penetrating the eye. A woman tries to pick open a hard knot on a bundle with a sharp pointed scissor's blade. It slips, stabbing into the eye. A bird-shot from a boy's gun, carelessly aimed, pene-

A group of twenty-one children from the State School for the Blind at Batavia whose eyes were lost through accidents which could largely have been prevented. The second eye in most cases was lost through sympathetic ophthalmia.

trates the eye ball, and this is most disastrous because the lead can rarely be secured.

These are instances which might be indefinitely extended,—every one of which has occurred in the writer's experience, and each one of which was the result of unwarrantably gross carelessness, due to the fact that the possible dangers had not been individually pointed out. An eminent Italian jurist once said: "That in order to convey an idea it must be repeated five times. The first time it is not heard, the second time it receives no attention, the third time it is not understood, the fourth time it is not believed,—therefore it is necessary to repeat it the fifth time."

In the campaign which is being waged to prevent blindness we all need wider information. The edge of the subject has but just been touched, and its measureless value we have none of us begun to realize. Following the lines of necessary education, if we are to secure the minimum advantages desired, is to keep constantly and repeatedly before the attention of the individual to whom accidents may occure the way injuries are received and how they may be avoided.

Second, to secure by process of law where necessary, and always when possible with the cooperation of the employer in those trades which endanger the eyes, the use of such protective devices, and such proper conditions as will minimize the danger to the last degree.

And third, to have so thoroughly understood on the part of the medical profession the imperative necessity of prompt and correct first aid in every case of eye injury that we shall be freed from the criticism of contributing even in a small degree to the loss of sight in a single human eye. I will speak of each of these points in turn.

The education of the individual, in order that he may protect himself against injury, and not be a source of danger to others, is by no means as difficult a task as at first glance it would appear. Even when dealing with children, or with stupid adults, the essential pedagogic principle is repetition, until ultimately the automatic premonition of danger with its warning comes from the subconscious mind. It was a stroke of genius when some efficiency man on the New York Central R. R. evolved the slogan, "Safety First." It is impossible to have these words strike the eye at every turn without being impressed with the necessity of added caution. The most effective educational measures, moreover, are not didactic. We are all consciously or unconsciously imitators. The introduction of safety devices, like the automobile horn, is an evidence of approaching danger. The fact that they are there suggests the necessity of greater care. So if the requirement is exacted that goggles *must* be worn where there is danger from flying fragments or of molten metal, under penalty of dismissal, in a short time it becomes as much a routine to protect the eyes as it is to slip on the gear by which the grinding wheel is started.

I am not by any means sure that it would not be a desirable procedure to penalize the proprietor when an employee is injured through his neglect to use the security provided, because by so doing the latter in turn would be obliged in self protection to insist on the rigid application of the rules of the shop. But on the other hand, in justice to the workman, the devices used upon the machinery or for his personal use, must be so constructed that they do not hamper his work.

An objection frequently and justly urged is that the shields, which are purchased ready made, fit the machines so badly that they prove to be an annoyance, and are consequently laid aside, or that the goggles which are provided are so poorly adjusted that they cause discomfort, and the workman would rather take a chance (which seems to him remote of losing an eye) to wearing them.

The first difficulty has been met in the New York Central shops by a shrewd recognition of a common human trait. The men have been allowed, indeed encouraged, each to make the protection necessary for his own machine. He has a personal pride then in its construction. He adapts it as a skilled mechanic should to its purpose. Its use gives an additional pleasure to his work.

It is an easy matter to have the goggles adjusted to the individual as one would for motoring, and the satisfaction of the personal consideration involved makes their employment at the wheel become a habit. The responsibility for the education of mothers as to the danger involved in allowing sharp implements or dangerous playthings in the hands of children who have not yet acquired muscular and mental control should rest in the Board of Health, or in the Board of Public Education, or both. It was proposed in a report on this subject made before the National Education Association some years ago, that one of the blank pages in every school book might be used, without additional cost, and with great advantage, in giving a few brief directions concerning the care of the eyes.

As the book is of an educational character, and the student is to make the adventure of using it with his eyes, he should be told how to do so without injuring them. The following was given as an outline of this page:

TAKE CARE OF YOUR EYES.

1. Always take good care of your eyes. Blindness is one of the most serious afflictions that can happen to you.

2. In reading or writing the light should come over the left shoulder and be strong enough to enable you to see clearly.

3. A good lamp on the table is much better than a flickering gas light hanging from the ceil-

Effective pictures used by the New York Central Railroad in their shops to impress on workmen the value of protective devices. The man on the left wore no goggles and lost an eye; the man on the right has broken goggles and has saved his eye.

ing. The light should be properly shaded so that the glare does not hurt your eyes. The pages should be kept clean so that the type may be easily read. If the margins of the eye lid are red or sore, if the lids discharge, if the use of the eyes causes them to pain or the head to ache, if the letters on the page blur or become indistinct, the eyes should be examined by a competent person and proper spectacles should be used if needed.

4. Roller towels should never be used; they may carry disease of the eyes from one person to another.

5. Do not play with sharp pointed sticks, nor cut with the blade of a penknife toward you. Do not try to untie knots with sharp pointed instruments or buttonhooks; many eyes have been seriously hurt in this way.

6. Injuries or inflammation of the eyes should receive care from a skilled doctor promptly. Blindness may thereby be prevented.

There is no reason why this should not be done. The publishers would, I am sure, willingly cooperate, but as it has not been done, leaflets issued in large number by the Health Boards, or the Department of Education might assume this simple and inexpensive work.

In the second place it is reasonable to insist that the employers free labor from every unnecessary difficulty and danger. In the large industries this has become an essential part of the efficiency methods. The United States Steel Corporation has in its Safety Department alone a staff of eighty high grade men who are employed in perfecting methods for securing greater personal safety for the workmen employed. While the New York Central has so increased its efficiency, largely through these means, to have effected during the past year a saving of over a thousand dollars a day.

Another cause of accidents which had not occurred to me, but which Dr. Decot of Buffalo has noted, is that some of the injured men had imperfect sight to begin with. At the age of forty-five or thereabout is the beginning of presbyopia, or old sight. With no lessening of sight at twenty feet or beyond,—objects are dim at the working age if the eyes are not aided by near range glasses at this time. In some instances, too, former injuries have left scars or other defects which lower the acuity of sight. For every workman the physical examination should include a test of the sight, and this should be a permanent record as a standard, so that later in case of injury should a claim for damages be instituted, the exact amount of loss may be determined and from this the indemnity estimated.

With the conditions to which I have referred having to do with the public health, with public education, and with the laborer and the employer of labor, we are concerned only as citizens who are interested in the social welfare.

Relative to the third condition to which I have referred we are directly concerned as medical men. The imperative importance of securing correct first treatment of the injured eye, and this at the earliest possible moment, cannot be too forcefully emphasized. This has so impressed a large number of eye surgeons that almost every one of the group to whom the question was asked, "how could these accidents been avoided and better results as to sight obtained?" urged the necessity of correct and prompt first aid.

The urgency in the case of eye injuries lies in the fact that in the first place, if the eye is injured, and the iris prolapsed, the prolapsed portion should be immediately removed. It may be possible in that way to prevent a permanent inclusion of the iris in the wound, deposit of lymph in the pupilary area, and the intra-ocular inflammation which would consequently follow. This can be measurably anticipated by the use of atropine.

The second equally great danger is pneumococcic infection. This is very likely to follow wounds from chips of stone, from a beard of wheat going in the eye in the case of farmers, and puncture from a thorn, and even very slight injuries which leave an open surface on the cornea. The pneumococcus is as virulent in the eye as it is in the lungs. The tissue which is destroyed by ulceration, even if the eye is ultimately saved, is replaced by opaque scar tissue, leaving the vision so reduced as often practically to destroy the sight. We have, happily, for this an almost perfect specific in the ethylhydrocuprein hydrochloride, which is known by the trade name of optochin. It is a white salt, readily soluable in water, and was recommended by Leber at the Heidelberg Ophthalmological Congress in 1913. It has been so favorably reported on, and has proved so valuable in the hands of eye surgeons that all of those who are in the habit of seeing accidents with infections of this kind should have it readily available. It should be used every hour during the day, and occasionally, in acute cases, during the night, where the pneumococcus has been found to be the exciting cause of the ulcer. Of course, it is understood that it is primarily necessary that the foreign body, which is the exciting cause, be completely removed.

It would seem from these facts that the price which is paid in the loss of human eyes in the industries and elsewhere from negligence and gross carelessness is enormous.

It is evident, moreover, that by the united efforts of physicians, employers and others, this can be largely decreased. It would be quite within the province of the State Commission for the Blind to ask the aid of the medical profession in getting reports of all cases of accidents and injuries resulting in the destruction of sight. It ought to be possible from this to devise methods by which a large number might be protected and a great saving of money and higher efficiency secured.

ADDRESS OF THE PRESIDENT.*

By J. E. SADLIER, M.D., F.A.C.S.,
POUGHKEEPSIE, N. Y.

I DESIRE to take this opportunity to express to you my appreciation of the honor you conferred upon me when you selected me as your presiding officer.

When one considers the relative importance of this district branch, its great area of territory, density of population and vast number of members, he is impressed not alone by the honor he has received in being elevated to the position of President, but likewise by the responsibility assumed in so regulating and conducting the business and scientific work of the organization as to make it most productive and of the greatest possible use to its membership, and indirectly to the medical profession at large.

I thank you for the confidence you have reposed in me, but wish to admonish you that the success of any organization is dependent upon the individual effort of each member, and if this branch of the State Society is to rise and take its proper position as the largest and most productive unit in the State organization it will be incumbent upon the members to attend the meetings, and in their writings and participation in discussion give us the result of their experience and study along medical lines, thus making these meetings an annual clearing house for the work of the year that has passed, and send us out refreshed with new incentives and knowledge to wage the battle against disease for the coming year.

It is a noticeable fact that this society has enrolled among its membership a goodly number of men of international reputation, whose time and efforts are largely devoted to original investigation in institutions and laboratories especially designated for that purpose, and we are indeed proud of the work these men are doing. The product of their brains and effort constitute some of the greatest advances that have been made in the science and art of medicine and surgery, and to them and their kind throughout the world we will ever turn for new thought, new ideas and new methods. They will be the people who will formulate plans that will stamp out disease at its source, and eventually lessen and eliminate much that is now a menace to life and health, and a source of great worry and anxiety to the practitioner of medicine.

But, we must live in the present, and hope for the future—and, living in this era, we must use to its fullest extent the knowledge we now possess in order that we may accomplish the greatest amount of good and do the least amount of harm. So, you will pardon me, if instead of addressing you upon some advanced idea, or new method, as is a usual custom in delivering a president's address, I assume a retrospective or present day attitude and briefly talk to you upon:

"THE UTILIZATION OF THE KNOWLEDGE WE POSSESS."

It is a generally accepted view that medicine is not an exact science, and possibly may never be such. Yet, we are firmly convinced that the members of our profession devote more time to study, observation and thought, and are more thoroughly educated along the lines of their professional work than are the members of other great professions. Very much of the knowledge possessed by our profession is exact in character, and whilst it may be elaborated and amplified in the future, the present basic principles will ever remain, and it is along the lines of a proper and practical use of our knowledge of established facts that I am discoursing, for I am convinced that as a result of strenuous work, exhaustive in character, and many other reasons, we at times fail to be practical, and go looking for some will o' the wisp or Sunday disease, when if we utilized our knowledge and judgment we would easily recognize a week-day condition, of known and established characteristics, thus rendering to our patient the greatest material benefit, and saving ourselves mortification and disgrace.

For example: the methods of diagnosis and treatment of an empyema are definite and exact, and one should seldom, if ever, fail to recognize the condition. Yet, how often is it overlooked for a time? How frequently a diagnosis is made by a consulting physician that should have been determined by the physician in attendance, had he but considered the possibility and weighed carefully the history and clinical findings, and properly connected cause and effect. This is a mistake that I venture to say has happened to most of us. Personally, I plead guilty—and yet it should not have occurred.

Our knowledge upon cancer is far from complete, and we are devoid of an understanding of the particular exciting factor which induces epithelium to take on a proliferative and lawless growth, so that it penetrates the basement membrane and invades surrounding tissues. Yet, whilst our original investigators are using their energies to determine this exciting etiological factor in the production of cancer, we must not be unmindful of the fact that chronic irritation, in all of its varied types and locations, is an established predisposing element, and the medical man who is alert and watchful, and who removes by medical or surgical means all such intrinsic sources is, in many instances, actually treating a precancerous condition and removing the cause before the disease has become established. Hence the need to treat radically and early all lacerations of the female genital organs, the benign tumors, gastric ulcers, gall stones, infective and irritative conditions about the mouth and the many varied sources of chronic irritation, thereby utilizing to its known limits our present knowledge upon this subject. It is also an established fact that cancer, for a certain variable period, is a local disease, and radical removal at that time is productive of cure. Hence, the necessity of abandoning all efforts at "watchful waiting," which will lull the patient to destruction, but rather adopt early the principle of complete eradication through surgical interference.

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* Read at the Annual Meeting of the First District Branch of the Medical Society of the State of New York, at Nyack, October 9, 1915.

We lack the ability to absolutely diagnose cancer of the stomach sufficiently early to permit of removal and cure, but we can establish a diagnosis of some condition of a surgical nature in time to permit of operative interference of an exploratory character—which, when it discloses cancer and gastric resection is performed, will lead to permanent cure in from 25 per cent to 30 per cent of cases.

This is in marked contrast to the 100 per cent mortality in cases treated non-operatively, and is a sufficient warrant for the explorative operation and utilization of the limited knowledge we possess upon gastric cancer.

We have been conscious for many years of the great damage that is likely to occur to remote organs and tissues from lack of attention to focal sources of infection, and yet I question if we have all been as painstaking and thorough in our search for these death and disease producing centers as we should have been. In the illuminating and epoch-making work that is being done by Rosenau we shall hope to receive a new impetus that will go a long way toward concentrating our attention and effort in the direction of focal infections and preventing their dangerous sequences.

I am convinced that in our endeavor to diagnose many diseases, especially those of an abdominal or pelvic character, we fail, not because of lack of knowledge, but from our neglect to avail ourselves of the advantage to be obtained from taking a proper history and carefully reviewing all symptoms and conditions leading up to the present. Such history should be written and can seldom be obtained at one sitting, and frequently requires great patience and astuteness in the art of questioning upon the part of the historian—but when properly taken and coupled with an examination and observation equally thorough will lead to definite diagnosis, and it will be based upon facts of positive value.

One of the present day short-circuiting routes to diagnosis of abdominal disease seems to be by way of the X-ray, and whilst I am of the opinion that such radiographs are of great value as corroborative evidence in formulating our opinions, I am certain that strict reliance upon them is frequently misleading and tends to dwarf the medical status of the physician. He should endeavor to become a thorough clinician and view the case from *all* standpoints, utilizing the X-ray simply as one link in the chain of evidence.

In the acute infections, perforations and obstructions of the organs of the abdominal and pelvic cavities, do we always use practical and scientific methods in our pre-operative treatment. I'm afraid not.

Fractured bones are always put at rest immediately by temporary or permanent splinting, but acute conditions below the diaphragm are too frequently wig-wagged and mobilized by cathartics of various types, whose only result can be the prevention of localization of the disease and the dissemination of infection. When nature indicates the way, and lessens the peristaltic activity of the bowel by temporary paresis, stiffening of abdominal muscles, flexion of thighs upon abdomen, etc., should we not adopt these warnings and place such patients completely at rest? And rest means freedom from all things which excite peristalsis or any muscular movement, and at the same time we should place the patient in such position as will best tend to localize the infective process.

The proper use of these established facts will lead to a lessened mortality and morbidity following operative treatment.

Whilst surgery is relatively exact in its elimination of disease, we must not forget that the treatment of a case should not end with the healing of the wound made by the surgeon, for the mental and physical impairment of the patient which existed prior to operation is not immediately removed. Surgery removes the cause, but it remains for the physician, by judicious after treatment and observation, to gradually remove these effects. Neurasthenia states, psychoses, anemias, deficiencies of elimination, and various functional and organic conditions, are frequently the by-products of surgical disease, which requires primarily surgical interference—but such surgery will not restore the patient to *full* health unless supplemented by judicious observation, medical advice and treatment, and I beg that our internists will give this feature greater consideration than it has received in the past.

The suffering and hardship incidental to disease have been mitigated and in many cases almost eliminated, as a result of the development, during the last quarter of a century, of the profession of trained nursing. Skilled, scientific attention and observation have been substituted in place of the neglect and empirical nursing of former years. Too much cannot be said in commendation and praise of this junior profession, which has developed to standards of such magnificence as to render such care obligatory to the proper treatment of disease. This nursing care is exercised to its fullest extent in the hospital, and to a fairly adequate degree in homes in the cities—but I am of the opinion that in the rural districts, and to a certain extent in the smaller cities, we do not avail ourselves sufficiently of this known advantage and assistance in combating disease. I can imagine nothing more forlorn and hopeless than a case of pneumonia treated at home without the careful watching and attention of the professional nurse.

The gynecological departments of our hospitals are filled to repletion with cases which, in many instances, represent the damage and disease resulting from childbirth. Much of this is unpreventable and incident to the many weakening influences of civilization upon the mental and physical state of the patient. But is not a proportion of it due to the fact that in our obstetric practice we are not fully executing our proper present day knowledge? We are not always caring for these patients from an aseptic standpoint, as we would for our surgical cases. In but a small percentage of these conditions are we availing ourselves of the known advantages relative to asepsis, which can only be obtained through having at hand the services of the professional nurse. Too much of this care is left to unskilled, careless and uncleanly people, who may have the best of intentions, but whose knowledge of asepsis is practically nil. Where the environment is bad and adequacy of nursing is not possible such cases should be referred to maternity institutions. It is high time we looked to basic fundamental principles of obstetrics, and insist upon proper ante-partum and post-partum care, sufficient attention to pelvimetry, and a complete knowledge of the case prior to the onset of labor, as well as proper care and environment during childbirth and the period following.

Let us relegate to the past the thought that child-bearing is a purely physiological process and results favorably, and become impressed with its great dangers and the necessity for perfection of aseptic, surgical and obstetric technique. By so doing we will place the science and art of obstetrics upon a proper basis, and lessen mortality and morbidity incident to labor.

The surgical treatment of disease seems to have a continuously increasing sphere of usefulness, and many conditions formerly treated from the internist's standpoint are now placed in the domain or surgery. Yet such change in the character of the treatment of these diseases does not eliminate the medical man from the case or lessen the great responsibility he assumes in so interpreting the symptomatology and physical findings that he may be able to get timely and adequate surgery performed—for most surgical cases are seen primarily by the family physician and upon him develops the responsibility of suggesting surgical consultations—and in order that he may have that astuteness in surgical diagnosis requisite to meet such responsibility it is imperative that he should familiarize himself with surgical pathology, as seen in the living subject at operation. In no other way can he obtain the knowledge with which to properly interpret symptoms and prevent the calamities that may happen unless forestalled by surgical intervention.

The study of living pathology at the operating table has shown us that many symptoms and conditions formerly considered trivial and unimportant are of vast importance and are the inaugural signs of severe cases — whereas pathology as seen at autopsy shows terminal conditions representing the havoc wrought by a disease that has proceeded unchecked to a fatal termination. Therefore, I contend that our medical men should carefully note the symptoms and results of physical examination of their patients, and always where possible observe the operation, note the living pathology, and properly correlate the symptomatology of the disease with the findings as seen at operation.

The lessons to be learned by such observation and study will be in future work of a value beyond all reckoning. In proof of this one has but to note the present status of disease of the gall-bladder and gall ducts, gastric and duodenal ulcer, disease of the pancreas, and of the large intestine, as compared with the former knowledge of disease of those organs.

In addressing you upon this subject of the *Utilization of the Knowledge We Possess,* I do not wish to detract from the idea that a medical man should be a student and be seeking always for new ideas and new plans of treatment. He should be an observer of the clinics, at our great centers for such work, and in every way possible he should endeavor to increase his knowledge.

Yet, in gaining knowledge along advanced lines, let us not forget to use properly, and to their full extent, the known facts which have been established and which are the result of study by, and experience of, those who lived in the past or who are in the advance guard of the present.

END RESULTS IN CASES OPERATED FOR SALPINGITIS.*

By E. MacD. STANTON, M.D., F.A.C.S.,
SCHENECTADY, N. Y.

PELVIC inflammatory disease of tubal origin is one of the most frequent conditions which the surgeon is called upon to treat. The fundamental principles involved in this field of surgery were most of them worked out many years ago by Lawson Tait. Since then thousands of operations for pelvic inflammatory disease have been performed each year. There is scarcely a surgeon, anywhere, who does not deem himself capable of operating for salpingitis, and yet if our standard of success is to be measured in terms of the health and well-being of these patients in the years following the time when they come under our care we must soon recognize that while a certain degree of technical skill is absolutely necessary, a sound surgical judgment is the chief requisite of success.

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* Read at the Annual Meeting of the Fourth District Branch of the Medical Society of the State of New York, at Saranac Lake, October 12, 1915.

For the purpose of bringing before you several of the problems which confront the surgeon in this field I have analyzed the results obtained in 100 patients operated by myself for pelvic peritonitis of tubal origin. In selecting this group I have taken the first 100 cases whose post-operative condition I have been able to trace for a time sufficient to determine the end result. At operation the pathological diagnosis was acute salpingitis in six cases, pyosalpinx in thirty-four, tubo-ovarian abscess in seventeen, hydrosalpinx in thirteen and chronic salpingitis in thirty.

The figures obtained from analyzing a series of 100 cases are of almost no value from a statistical standpoint. From a clinical viewpoint, however, the group is sufficiently large to bring clearly before us the chief problems which the surgeon has to solve.

In this series there were three post-operative deaths as follows:

I.—Female, age about thirty-five. This patient was admitted on the fifth day following delivery and on the third day of a general peritonitis. On admission the abdomen was absolutely rigid, the skin was cold and clammy and the pulse could not be counted at the wrist. The patient was put on the Ochsner treatment, and I fully expected her to die within a few hours. Much to my surprise she survived the night following admission and was decidedly better the next morning, and continued to improve until the temperature reached normal on the ninth day of the peritoneal infection. I wanted to operate at this time but owing to difficulty in reaching her relatives the operation was delayed for four days. In the meantime a left parotiditis had developed, and although on the thirteenth day of the peritoneal infection a well-defined pelvic abscess containing more than two quarts of pus was opened and drained the patient died of asphyxia due to Ludwig's angina three days after the operation. The abdomen was perfectly flat at this time, all symptoms of an active peritonitis having disappeared.

II.—Colored female, age thirty-five. Patient sick for several weeks and very ill for past four days. Could not give a satisfactory history as to onset of trouble. Pulse 140, very irregular. Respirations shallow and painful. Abdomen distended, rigid to umbilicus with mass filling lower half. Pelvis full of exudate. A vaginal puncture was attempted under spinal anaesthesia, but a subserous fibroid was encountered behind the uterus and the drainage was unsatisfactory. Five days later using novocaine and ether anaesthesia a right tubo-ovarian abscess and left pyosalpinx were readily removed through a median incision and the pelvis drained. The pulse during the operation ranged from 140 to 160 and was very irregular so that the condition of the patient did not permit of further exploration at this time. She seemed to improve slightly for several days, but died suddenly on the seventh day following the laparotomy. Autopsy showed a large subdiaphragmatic abscess in both upper quadrants. This abscess was not demonstrable by ordinary methods of physical examination and the condition of the patient was always too precarious to permit of exploration other than that which was done.

III.—Female, age thirty. Patient complained of left renal colic. Cystoscopic examination showed the left ureter swollen and pouting. Collargol plate of left kidney showed normal pelvis and no stone in ureter. Pelvic examination showed inflammatory mass in left fornix. Laparotomy. Left tube and ovary firmly bound in region of ureter. Left tube and ovary excised, abdomen closed. Patient died two days after operation from general peritonitis. Autopsy showed that the stitch ligating the very short left ovarian pedicle had been passed through the ureter adherent beneath the pedicle and that urine had leaked through this stitch hole into the general peritoneal cavity. This is the only death due to a gross error in operative technic in a series of over 2,000 surgical operations. The proximity of the ureter was fully recognized at the time of the operation, but, nevertheless, it was injured in passing the stitch.

The first problem which presents itself in the treatment of these cases is the question as to whether or not an operation should be advised. Unquestionably a very considerable proportion of pelvic infections will clear up entirely if left alone. The woman with a pelvic infection should be given a fair chance to recover without an operation. This does not mean, however, that she should spend many weeks or months in bed when she could be safely cured in three weeks by appropriate surgery. Neither does it mean that she should go through many repeated attacks. As a rule, I believe, the first attack should be treated wholly conservatively or at least so until it is proven that the convalescence is not going to be reasonably prompt. In the recurrent cases, especially if there have been a number of attacks, the recurrences themselves are proof of the failure of non-operative methods. Most of these should be operated at the first safe opportunity; likewise, the patient, who following one definite attack, never gets reasonably complete relief. In the series I am now reporting the decision in favor of operation was reached according to the above indications in all but four cases. In these four the onset of the trouble was of such a character as to make the exclusion of other more dangerous lesions, such as acute appendicitis, questionable, and it was, therefore, decided to operate without waiting for further developments.

The second problem has to do with the time when these patients should be operated. Six in this series, including the four above mentioned, were operated within thirty-six hours of the first onset of the trouble. In each the attack began so suddenly and with such severity as to suggest the possibility of some other condition. An acute purulent salpingitis with early peritonitis was found in each and all made prompt and uneventful recoveries. The other ninety-four patients were operated after the subsidence of the acute symptoms.

In the acute case if the patient be put to bed and reasonable care is exercised to insure mechanical rest of the infected region the temperature will reach normal in the great majority on about the eighth or ninth days. By this time a relative immunity against the infecting organism has been established, after which there is little danger of spreading the infection by operative manipulations. If the temperature remains normal and the general condition continues to improve the operation should be deferred as long as the inflammatory exudates continue to be absorbed. In abscess cases after several days of normal temperature there usually develops an afternoon temperature of a septic type. Under these circumstances I have operated without further delay. In a number of instances I have had to be content with the simple drainage of abscess cavities yet the results have been excellent.

The third problem has to do with the route to be selected. All of the patients in this series were treated by laparotomy. In only one case was a vaginal puncture made five days before the abdominal section. I am fully aware of the arguments in favor of vaginal puncture in properly selected cases. I do not, however, believe that the drainage of a pelvic abscess through an abdominal incision is a dangerous procedure, provided one does not operate during the acute stage of the infection. By the time the great majority of abscess cases are ready to be operated the possible advantages of the vaginal incision are overbalanced by the fact that even when simple drainage alone is employed more accurate and thorough work can be done from above. Through a laparotomy incision the offending tubes may in the great majority of cases be safely removed. If it is not advisable to remove them the pockets of pus may be opened no matter where situated and drains properly inserted. Fenger[1] as long ago as 1893 called attention to the excellent results obtained by simply incising and draining the tubes through a laparotomy incision in cases in which it was deemed unsafe to attempt their removal. It is a curious fact that a number of surgeons who are most enthusiastic advocates of conservative vaginal puncture become ultra radicals the minute they get the abdomen opened. This is not at all necessary provided we always have in mind, first, the safety of our patient, and second, the fact that nature with a little judicious help can take care of most pelvic infections.

In three cases in this series nothing was done other than to drain the abscesses. One patient, reported above, died of Ludwig's angina. The other two made uninterrupted and perfect recoveries. In four additional cases of pyosalpinx it was found impossible without great danger to the patient to remove both of the infected tubes. The convalescence in one was greatly delayed by the development of a fecal fistula caused by sloughing of the intestine at a point where it had been adherent to the tube removed. It would have been better in this case not to have attempted the removal of either tube. The other three patients made perfect recoveries, and have suffered no inconveniences from the tubes left behind.

When the abdomen is opened the infected tubes should be removed if this can be done with safety but the chances of an excellent result following simple but thorough drainage as recommended by Fenger are so good that the life of the patient should never be seriously endangered by unwarranted attempts to do complete operations. In fact, it is quite possible that it is actually safer to leave an already diseased tube after providing ample facilities for drainage than it is to do an unilateral salpingectomy when one tube presents a relatively normal looking appearance. Lawson Tait[2] was one of the first to emphasize the fact that only a very special desire for subsequent pregnancy ever justifies leaving a relatively normal looking tube if the other tube shows evidence of recent infection. The disease, and especially the gonorrheal type, is almost always bilateral. A unilateral salpingectomy done before the other tube has become infected is usually followed by infection in the remaining tube. Four patients in this series had previously had a unilateral salpingectomy performed by some other surgeon.

A fourth problem has to do with the methods of drainage in the laparotomy cases. Forty-one patients in this series were drained—or; all through the lower angle of the supra-pubic incision. In the abdomen the theoretical advantages of gravity as an aid to drainage are largely negated by the intra-abdominal pressure which is amply sufficient to close the drainage cavities. Even in the deepest pelvic abscesses the pressure of the column of pus in the unobstructed drainage tube is less than 1.5 mm. (1/16 inch) of mercury—an insignificant factor even from the theoretical viewpoint.

One of the advantages claimed for drainage through the cul de sac of Douglas in laparotomy cases is the supposed avoidance of ventral hernia. One advocate of vaginal drainage[3] stated a few years ago that ventral hernias would probably result in 50 per cent of wounds drained supra-pubically. In a recent study of the ventral hernias following approximately 500 laparotomies performed by myself, I find only about 3 per cent of hernias developing in drained cases when the sutured portion of the wound did not break down by infection. In the present series only one of the forty-one drained cases has developed a ventral hernia. On the other hand three ventral hernias have developed in the fifty-nine undrained cases. In the forty-one drained cases in this series there was no instance in which I believe the results in any way could have been bettered by vaginal drainage through the cul de sac.

No problem in gynecology has been more thoroughly discussed both pro and con than the question of the preservation of the ovaries in these cases. In this series one or both ovaries were preserved in sixty-seven patients while in thirty-three both ovaries were removed. Among the sixty-seven in whom one or both ovaries were saved there were several instances in which one ovary was moderately swollen and tender for three or four months following the operation, but in only two of the sixty-seven patients did an ovary subsequently undergo markedly painful systic degeneration, and one of these patients when last seen three years after the operation was practically free from symptoms.

Turning to the thirty-three patients in whom both ovaries were removed we find that fourteen were cases of double tubo-ovarian abscesses, while in the remaining nineteen both ovaries either showed serious pathological changes or the patients were over forty years of age at the time of operation. Among these thirty-three patients seven are known to have had decidedly troublesome symptoms of the surgical menopause. The others either had no symptoms of a surgical menopause or they were so slight as to cause no complaint from the patient. As regards the incidence and severity of the postoperative symptoms referable to removal of the ovaries these results are similar to those reported by other surgeons.

One fact worthy of note is that in my series the worst instances of surgical menopause have occurred in the older women who were still menstruating at the time of the operation. This point has been previously noted by Olshausen[4] and Peterson[5] who state that the idea that the younger the woman the more will she suffer from the symptoms of the menopause after double ovarectomy is not necessarily true. As a matter of fact the greatest percentage of suffering occurs in women operated between the ages of forty and forty-four.

From the viewpoint of the surgeon the results after double ovarectomy have been very satisfactory. The patients, too, are satisfied, and yet when I look at the present condition of these patients from the broader standpoint of mental, nervous and physical stability I can not help but feel that if I were a woman I would take the chances of a second operation rather than have both ovaries removed, unless the indications for removal were absolutely imperative.

For me no problem of surgical judgment has been more difficult than the question of hysterectomy in these cases. In most instances the additional operative risk is very slight, but it is always a factor worthy of consideration. If the dangers and inconveniences of subsequent retroversion, metrorrhagia, leucorrhea, tumor growths, etc., could be avoided without inviting other equally distressing complications, I would do a hysterectomy in a much larger proportion of cases, but most of these patients are young women and years after a hysterectomy they may develop a vaginal atrophy or a vaginitis far more troublesome than any uterine complications which they might have had. Furthermore, it is a well-known fact that with hysterectomy, even when an ovary is retained, from forty to sixty or more per cent of patients will suffer from the nervous symptoms of the surgical menopause, and lastly we must not forget that hysterectomy often has a most profound influence on the sexual life of the patient.

In this series the uterus was removed seven times—always by supra-vaginal hysterectomy. Five of the hysterectomies were performed because of a history of excessive flowing, and I believe that this should usually be an indication for hysterectomy, unless there is some special reason for preserving menstruation. Of the ninety-three non-hysterectomized patients in only two was excessive flowing an important factor after the operation. Both were relieved by a secondary curettage.

Probably the most frequent relative indication for hysterectomy is the leucorrhea incident to the uterine infection. Some operators would make this a very frequent indication for removing the uterus. However, it is worthy of note that the one patient in this series on whom a hysterectomy was done because of a leucorrhea was greatly improved for a few months, but later developed a very troublesome vaginitis which resisted all forms of treatment.

Among the ninety-three patients not subjected to hysterectomy there were several who for a time complained of a leucorrhea, but gradually the uterine infection subsided and today, I believe, each of these women is better off with her uterus than she would be without it.

In order to guard against post-operative retroversion one should take special pains not to injure the round ligaments during removal of the tubes and at the close of the operation they may usually be shortened by stitching them over the uterine cornua. In addition the uterus may be temporarily suspended by passing through the fundus and the abdominal wall a silk worm gut suture which can be later removed along with the skin stitches. The subsequent development of troublesome retroversion has not been a factor in this series.

In studying the after results in this series I have been somewhat surprised by the almost complete absence of symptoms ordinarily attributable to adhesions. From the viewpoint of the pathologist I have never been an enthusiast over the prevention of adhesions by the various special technics devised for this purpose. I have used ordinary care in closing over denuded surfaces when the same could be done without putting tension on parietal peritoneum, and have been careful that at the close of the operation all organs should lie in as near normal relationship one to another as possible.

In my experience enteroptotics, visceral hypersensitives and allied neurasthenics who are operated by an inquisitive surgeon without definite pathological findings are the patients most likely to complain of so-called adhesion symptoms. The relative absence of adhesion symptoms in this group is, I believe, due partly to the fact that the series is composed wholly of patients operated for a real pathology.

In conclusion let me say that the attitude of the surgeon toward these cases will probably always depend to a considerable extent upon the mental bias of the operator himself. The innate radical will do radical operations, while the naturally conservative man will remove as little as possible and trust much to nature. My own experience, confirmed by careful checking of the late results following operation, has tended to place me on the side of the conservatives.

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TWO CASES OF ACUTE INTESTINAL OCCLUSION FOLLOWING PARTURITION.*

By JANE LINCOLN GREELEY, M.D.,
JAMESTOWN, N. Y.

If the enemy always attacked at the expected time and place, and in the regular formation of dress parade, war would be simpler but less interesting.

On Monday, August 24, 1908, Mrs. H., a healthy primipara of twenty-nine, was delivered at 3.20 in the morning, after a normal labor of twelve hours. The only history of sickness to be obtained later, after repeated questioning, was of post-tonsillar abscess several years previous. Pregnancy had been normal and observation had been frequent. The placenta was expressed half an hour after delivery, and one dose of ergot was given. A perineal laceration was repaired. The abdomen was noted to be slightly bulging on the left, suggestive of overstrained muscles, and was perhaps slightly more tender than in the average case. During the second stage the abdominal muscles had seemed inefficient. Monday evening there was slight tympany and slightly more prominence on the left and some general abdominal pain. Tuesday morning I found that there had been no sleep because of colicky pain, and vomiting had occurred twice. T. 98, P. 64. Morphin gr. 1/6 with atropin was given hypodermically. The condition remained much the same through Tuesday. Turpentine stupes were applied and a turpentine enema brought flatus and a small amount of soft faeces. Vomiting was at intervals of four or five hours, without much nausea, regurgitant in character, and of greenish fluid. The abdomen was fairly soft. The pain was readily relieved by morphin gr. 1/6 in the evening. The third day the condition was much the same. T. 99, P. 64. An enema brought flatus and a little faeces. A dose of calomel was given, followed later by castor oil, which latter, fortunately, was vomited. Morphin gr. ⅛ controlled the pain. Tympany continued of mild degree. Patient spoke of feeling as if everything went just so far and then stopped. In the evening the record was T. 100⅗, P. 100. In consultation with a surgeon it was decided to move the patient at once to the hospital and operate early next morning for obstruction of the bowel. Dram doses of dilute spirits were given through the night and retained. A right median incision below the umbilicus brought a gush of thin, yellow faecal matter from the ileum found to be firmly adherent at this point to the abdominal wall. The bowel was repaired and freed from the apparently old adhesions extending nearly an inch toward the right where it was sharply angulated, causing obstruction but not serious interference with circulation. The patient made a good recovery, and has since had two normal pregnancies with normal delivery. The abdomen has been a little more tender and tympanitic following delivery than is usual, but there have been no other exceptional symptoms.

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* Read at the Annual Meeting of the Eighth District Branch of the Medical Society of the State of New York, at Olean, September 21, 1915.

Last November (1914), Mrs. A., a healthy primipara of twenty-three, with a history of appendectomy four years previous, was delivered in hospital after a tedious labor of thirty-six hours. In order to prevent undue strain on the scar tissue forceps were used to shorten the second stage. A perineal laceration was repaired. The delivery was shortly after noon on Sunday. The patient ate a light supper with relish and slept well. At the morning call Monday she seemed in fine condition, having a little abdominal pain and tenderness over the region of the fundus and to the right. In the evening she was reported to have persistent recurring pains which I assumed without investigation to be uterine pains and ordered by telephone a mild anodyne and the usual dose of oil. An hour later I found her suffering severely with somewhat more tympany on the right, but no rigidity. There was general abdominal tenderness, but not of exquisite degree. She lay on her back with knees flexed, but could turn without great distress and lie for a time on the side. T. 98, P. 64. I gave her morphin gr. ¼ with atropin by hypodermic, and waited till she should be relieved before I left, supposing that it would be a matter of twenty minutes or so. But for nearly six hours I worked over her before the pains would remit for even five minutes. They were wave-like in character, at intervals of a minute or two, and were described by her as "hurting" pains or "gas" pains, always a little worse at the right. In all, she had not quite ¾ gr. morphin, with 1/50 gr. atropin. An enema given in the knee-chest position returned only after the insertion of a rectal tube. No flatus was passed. From 3 o'clock there was occasional relief from pain and some sleep. There was no vomiting whatever. An occasional spoonful of water was retained, and the following day an ounce or two of clear tea at intervals. The pulse varied from 64 to 84. The morning record was T. 99⅗, P. 84. A surgeon saw the patient in consultation at 8 o'clock. In the abdomen, to the right of and about the level of the umbilicus, there was an elongated resistance not to be clearly defined, suggestive of possibility of tumor or faecal mass. It was decided to try for a few hours high enemata. In all, four enemata were given with no result and no return of fluid without tube. No opiate was given through the day and pain was not severe. At 4 P. M. the record was T. 101, P. 112, pain returning. At 8 P. M. for the first time there was vomiting, a flaky, dark odorless fluid with traces of oil. It was decided to operate at once. An incision through the right rectus showed the caecum enormously distended and greatly congested. It was caught over a band reaching to the abdominal wall on the right, and was twisted halfway around on itself. Two areas were so unpromising in circulation that the bowel was incised for the escape of gas and the areas repaired and turned into the lumen. In spite of a long period under ether the patient did not vomit at all after return to her bed and required no stimulation nor medication of any kind during the early days of convalescence. The only drawback to an otherwise excellent recovery was an infection of the perineal repair. Considering the number of enemata given, besides rectal manipulations in tests of the patency of the bowel at the time of operation, this was hardly to be wondered at. The infant was put to the breast after the second day and both throve without disturbance.

In the first case I lacked courage to have the mother resume nursing after operation, and the child died a few months later largely as a result of poor nutrition.

Occlusion of the intestine (Bibliography chiefly Nothnägel) may be:

1. From within the lumen: Gallstones, faecal mass, foreign body, new growth.
2. From the folding of the intestine upon itself: Intussusception, kink, adhesion, volvulus.
3. From pressure from without: Bands, new growths or displaced organs, herniae either through the abdominal wall or internal.
4. From loss of tonicity: Post-operative or traumatic.

Acute occlusion gives as cardinal symptoms:

1. *Pain.*
2. *Abdominal distention* or *meteorism.*
3. *Constipation* (total).
4. *Vomiting.*
5. *Collapse.*

An additional sign in some cases is the presence of large amounts of indican in the urine.

Were these five symptoms always present, the diagnosis might be readily made, but any one or all may be lacking, or all may be present without obstruction.

1. *Pain.*—Typically, it is sudden and intense, due to two causes—increased peristalsis, and interference with nerves and circulation in the part affected—hence it may vary greatly in degree. If the tract is comparatively empty, it is less. If peristalsis is not excited by food or cathartics, it is less. It may cease altogether when the bowel is practically paralyzed. The pain is commonly general or centers at the umbilical region, but it may be localized elsewhere. Tenderness always accompanies it, but not at all of the degree common in peritonitis.

It, also, is usually localized, at least to a suggestive degree. Pain, which commonly quickens the pulse, may sometimes in these cases, slow the pulse from effect upon the pneumogastric nerve branches. The degree of shock and pain is dependent not so much upon peristalsis as upon the injury to nerve and blood supply. Thus, in the second case, it was much more severe.

2. *Abdominal Distention.*—In general, inflation of the intestine arises not only from accumulation of gases from fermenting food and inability to expel these gases downward, but also, and perhaps chiefly, from the inability of the blood current in the wall of the intestine to absorb gas. Possibly, in some cases, CO_2 is also given off by the blood. Hence the degree of meteorism depends in part upon the degree of injury to the bowel. At first it is usually most marked just above the point of obstruction. The tension may be so great as a result of internal pressure of gas, combined with muscular pressure of the wall from increased peristalsis, that a hard tumorlike mass may be felt, as in the second case, varying to the touch from time to time in degree of resistance and outline. In acute obstruction, there is not time for the hypertrophy of the muscle wall which occurs in gradual obstruction, and visible peristalsis is therefore not to be expected. The patient may, however, have the distinct feeling of peristaltic waves and rumbling of the upper tract with feeling of definite interference at a given point. The rigidity of the abdominal wall is not nearly so marked as in primary local or general peritonitis, although either of these may speedily be added.

3. *Constipation.*—As a rule it is absolute for flatus and faeces, yet there may be a passage at the onset of pain or with the first enema. In the first case, however, each of the three enemata brought flatus and a small amount of faeces. In the light of the findings, it may be inferred that the obstruction was not complete at first and some peristalsis continued below the point. Volvulus, on the other hand, gave this symptom in the second case with absolute clearness. There was *no* effort to expel gas or faeces. Intussusception would have given tenesmus with bloody mucus. Rarely there may be, even with total occlusion, a dirrahoea from excessive secretion of the mucosa below the point.

4. *Vomiting.*—Pain, of itself, may cause initial vomiting. But the vomiting of obstruction, is, according to some observers, neither reflex nor due to retroperistalsis, but is the flowing back of liquid from accumulation against a barrier and is favored by the changing pressure of the abdominal wall. Now, if the canal is nearly empty or if the obstruction is low down, vomiting may be long delayed. The vomitus may gradually acquire faecal odor and color, not because it comes from the lower tract, but because of chemical changes going on while the contents of the ileum are stagnant. If typical, the vomiting is regurgitant without much nausea. Faecal vomiting is not a symptom to wait for.

5. *Collapse.*—In both cases above I was much impressed with the lack of constitutional indications of the gravity of the condition. Even the second, in spite of prolonged pain, did not show the drawn, gray countenance with moist forehead that my fancy would have pictured in reading. The pulse was a trifle slow, but good in volume and quality, until shortly before operation. Temperature was not affected till then. The patients were both of them responsive and fairly cheerful. Collapse is not a symptom to wait for.

DIAGNOSIS.

The presumption was certainly in favor of the pelvis as a source of trouble. Against this one could only put the lochia, normal in character and amount; the softness of the lower abdomen; the only slight tenderness over the fundus and more elsewhere; and the character of the pulse. The normal temperature also looked otherwise. Peritonitis, either local or general, would be ruled out by these same signs, although exceptionally peritonitis may occur without fever or rigidity or extreme tenderness on pressure. In both cases peritonitis would have followed in twenty-four to forty-eight hours at the farthest and would have dominated the picture. Rupture or perforation would have been much more rapid in development of grave signs. A twisted pedicle would have given a more or less well-defined tumor mass somewhere. Internal hernia could only be ruled out by operation. Paralytic distention of bowel might have followed rough handling or very difficult delivery, but the distention would have been even and more pronounced.

TREATMENT.

Relief of Pain.—It is the first consideration, not only for the comfort of the patient, but to prevent further damage from excessive muscular action. Morphine by hypodermic was the quickest way to secure this end and to prevent shock. To give morphine for the relief of a patient still felt to be in danger and watched, is not like giving it for the peace of mind of the doctor. Perhaps opium by mouth would have been better as advised by good authority.

One Enema — Possibly Two. — The first empties the lower bowel for relief and for treatment, if needed. The second may serve as a diagnostic test, especially with a low obstruction as of the sigmoid.

No Food.—Water in very small amounts is important. Gastric lavage may serve the double purpose of checking excessive vomiting and administering water.

No Cathartics.—The wisdom of this detail of treatment is self-evident. And yet, I am not wholly sorry that the active peristalsis made enough more disturbance to convince the watcher that something radical must be done, and soon.

I may add in treatment, *no vigorous handling* of the abdomen. When the conditions are actually seen promptly, the sight is very convincing as to the wisdom of fairly gentle palpation.

Reflections.

In twenty-four hours longer these would have been cases of peritonitis with the burden of proof resting on one who claimed any other than pelvic origin. Are there other cases like them? Was the great change in intra-abdominal pressure the immediate cause of the trouble?

Bowels that will not move must *not* be made to move; or, otherwise put, severe abdominal pain is a contra-indication for cathartics.

First find out what is the trouble before giving telephone orders.

Do not assume because a patient is nervous that she has "nervous pains."

A surgeon is a handy thing to have in the house.

And, finally, if you *must* have a case of intestinal occlusion, put aside your natural scruples and choose a two-day parturient, whose intestinal tract is therefore nearly empty and whose system is at the top notch of reparative efficiency.

Notes from the State Department of Health

April 19, 1916.

Dr. John C. MacEvitt,
Editor, New York State Journal of Medicine.

Dear Doctor MacEvitt:

Enclosed is a report which indicates the type of work our sanitary supervisors are doing in various parts of the state.

Very truly yours,
F. M. Meader,
Director, Division of Communicable Diseases.

History of a Typhoid Carrier in the Town of N., N. Y.

Dr. Hermann M. Biggs, *Commissioner,*
New York State Department of Health.

Dear Doctor:

A. G., aged fifty-five years, has run a dairy farm in the Town of N., on the outskirts of the city, for the past ten years or more, the milk produced on his place has been sold in the City of N.

About sixteen years ago he had an attack of typhoid fever, has been in good health since that time, does the work on his farm, including milking, assisted by his son and other members of his family.

The milk was not peddled directly by Mr. G. himself, but was sold to retail milkmen, who distributed it with milk from other farms to their customers throughout the city.

The City of N. has the following typhoid history:

1909,	110	cases of	typhoid	reported,	with	12	deaths
1910,	65	"	"	"	"	13	"
1911,	57	"	"	"	"	11	"
1912,	76	"	"	"	"	12	"
1913,	23	"	"	"	"	7	"
1914,	32	"	"	"	"	6	"
1915,	40	"	"	"	"	6	"
1916,	No cases reported thus far this year.						

In 1912-1913 the milk supply was suspected and examinations were conducted by the local authorities, and by the State Department of Health. Mr. G. was implicated and had a long controversy with the state and local officials, but it could not be ascertained that anything was ever definitely proven against his milk supply.

During 1913 the present health officer, Dr. T. J. B., accepted the position as health officer, and it was due to his activity that the typhoid morbidity was lowered, the cases decreasing from fifty to seventy-five a year to twenty and thirty. This was accomplished by following up the milk supply in each outbreak and shutting off the suspicious places. When the outbreak would cease, the suspicious places would number four to six dairy farms, and Mr. G.'s place was always one of the number.

In 1914 an outbreak of thirty-two cases occurred, which was traced to the ice cream manufactured at C.'s factory in N., where it was thought that an adjacent privy had infected the water of a pond where the cans were washed and this caused the epidemic, however, the milk from which the ice cream was made came from the G. farm.

Early in 1915, another outbreak occurred and again was traced to a few farms, one of which was G.'s place. Widal tests were made of all persons on the farms and specimens of feces sent from all on the G. farm to Albany for examination, through some delay in travel the examinations were worthless and other specimens could not be obtained. G. was, however, warned against selling any milk in N.

Later in 1915 typhoid broke out again and traced to a dealer in milk named P., his milk came from a dairy where one of the helpers had typhoid three years ago, a careful examination of blood and fecal specimen from this helper proved negative, it was, however, learned at this point that his own supply of milk being short, Mr. P. had been quietly obtaining a couple of cans (eighty quarts) of milk per day from Mr. G., and that he had used this milk in his own family, two weeks from the time he got his first supply from G. one of his family was taken with typhoid, followed shortly after by another, the same thing happened all along his milk route.

The supervisor of the district with the help of Dr. E. P. B., the health officer of the Town of N., finally succeeded in getting a fresh specimen of feces from Mr. G., this was immediately taken to the laboratory of B. and N. Y. U. and delivered to Dr. N. Within three hours time, Dr. N. reported the specimen teeming with typhoid bacilli, and is now running a culture from this specimen in his laboratory.

A specimen of blood from Mr. G. is positive for the Widal reaction.

We feel that the high typhoid morbidity of the City of N. is explained by the above statement, as the water supply has been treated with hypochlorite of lime for the past two years, with no effect on the typhoid outbreaks.

Mr. G. has gone out of the dairy business since the last outbreak.

N. is now under a commission form of government and we have started some agitation to have a city pasteurization plant installed.

Respectfully submitted,
C. W. Berry, M.D.,
Sanitary Supervisor.

Correspondence

Dr. John Cowell MacEvitt,
Editor, New York State Journal of Medicine.

In the April number of the Journal, a communication from Dr. W. F. Campbell appeared, which contained such inaccurate statements regarding the publications of the Society that the Publication Committee directed me to place the facts before the membership. The statements and the facts are as follows:

Statement: "The Journal is published at an annual loss of over $5,000."

Facts: The cost of the Journal last year to the Society was $2,959.31, and not "over $5,000," and not one cent of it was "loss." *The cost per member was 36 cents.* The transactions of the Society must be published annually, as well as communications from the component societies and members. Publication in serial form is not only more effective than an annual volume, *but much less expensive.* It is a necessary and legitimate expense of the Society and to call it a "loss" is juggling with words.

It should not be forgotten that the Journal, unlike other periodicals, has but one source of income, i. e., from advertisements. But even this income is curtailed by the limitations which the Society itself, through its House of Delegates, has properly set upon the character of the advertisements. Open the door to untruthful, exaggerated, secret, and unethical advertisements, and the income of the Journal would immediately increase and the expense to the Society would correspondingly diminish to its profound discredit.

Statement: "In cheapening the appearance of the Journal, it becomes less attractive to advertisers." "Five hundred dollars 'saved' in cost of manufacture may mean the loss of thousands in advertising. Such 'economies' do not appeal to the experienced publisher, yet they assume the dignity of virtues to the Publication Committee."

Facts: The receipts from advertising last year in the Journal were $452 more than for the previous year; while the advertisements and sales of the Directory were $232 more, and this in the face of unfavorable business conditions. Efficiency is the keynote of modern business. Money saved "in cost of manufacture" which is followed by increased business, as it has been in this case, appeals alike to the "experienced publisher" and to a "board of unpaid and busy doctors." The paper used for the Journal is the same as that which was employed previous to 1914, in which year a slightly heavier grade was adopted. The cover is precisely the same as that adopted in 1914 and is the best the Journal has ever had.

The Journal is the same Journal of which Dr. Campbell said in 1914: "It is gratifying to record the unqualified success of our State Journal, under the able editorship of Dr. John C. MacEvitt, in fine co-operation with the Publication Committee. The Society has succeeded in publishing a journal of real character and literary merit. It has refused all advertisements of a questionable character, and maintained the highest standards of medical journalism to its financial detriment. The Journal reflects with dignity and distinction the recorded thought of our Society. *Furthermore it should be noted, that the publication of the* Journal *this year has been accomplished at the cost of over* $1,400 *less than the preceding year. This economy is worthy of commendation.*"

Strange that economy is commendable in 1913 and reprehensible in 1915; that $1,400 "saved" in one year is laudable, and $2,800 "saved" in another year is discreditable.

Statement: "We can be just as moral as we are willing to pay for."

Facts: In accepting advertisements, the Publication Committee is governed by the following rule adopted by the House of Delegates: "All advertisements of medical preparations must have been approved by the Council of Pharmacy and Chemistry of the American Medical Association before they can be accepted by the Committee on Publication." Under this rule the acceptance of nostrums and secret remedies or those presenting false or exaggerated claims, is forbidden. This necessarily reduces materially the income from advertising.

The Journal of the State Society publishes only clean advertisements at a cost of 36 cents per member a year. If the members cannot afford to pay this amount for decency's sake, they can reduce the expense by adopting those principles of medical ethics and business morality which will enable the Committee to accept nostrums and secret remedies and tolerate false and exaggerated claims in the advertising pages.

What is designated as "the experienced publisher" is a man in business primarily for gain, who will publish any advertisement at any time. His ideals rise and fall with cash values. The State Medical Society is the representative of a profession which is still animated by ethical ideals. The Journal is its official organ. Its publishing activities are carried on for its upbuilding and welfare, not for commercial gain. It cannot do some of the things that the lay publisher does without violating its conscience and smirching its reputation.

Statement: "If one suggest that the administration and development of the State Society's publishing enterprises could be better served than by a board of unpaid and busy doctors, he is guilty of high treason."

Facts: This is an echo of Dr. Campbell's proposition of two years ago to employ a salaried "Business Manager" who should devote his entire time to the State Journal. This plan has been tried and found wanting. A business manager was employed for two years, but at the end of that time it was necessary to charge off hundreds of dollars of bad debts and the protests against the character of the advertising were many and bitter. Conditions became so bad that the Society was forced to take the publishing activities into its own hands.

With the restrictions placed upon the advertisements, it would be impossible to obtain a competent and reliable business manager who would devote his whole time to the Journal without a large guaranteed salary. Four thousand dollars would be a minimum salary acceptable to an experienced business man. With the limitation placed upon the character of the advertisements it is easy to see how impossible it would be for him to earn this sum, a sum much larger than the entire cost of the Journal to the Society under the present management.

The publications are under control of the Council, which appoints the Editor and the Publication Committee, which supervise both the Journal and the Directory. The Committee employs an efficient advertising agent, who is under its full control and is remunerated according to the business he secures. It is also in close touch with the Co-operative Medical Advertising Bureau of the American Medical Association. This bureau was established three years ago for the purpose of aiding the twenty-two state Journals in their publishing work. It is rendering excellent and efficient service and the Publication Committee has co-operated with it from the first. It has nullified whatever valid arguments there ever were for saddling the Society with heavy administrative expenses in its publishing business.

In comparison with the Journal under a business manager, it is noteworthy that the report of the Publication Committee to be presented at the Saratoga meeting is based upon cash facts, not upon estimates and expectations which may never come true. The debts were all paid and there were no uncollectible bills to charge off.

The State Society is fortunate in that it does not have a large yearly bill to pay for administration in its publishing business. The Publication Committee is a sub-committee of the Council and works twelve months of the year, through busy season and vacation time alike. Dr. Campbell must be credited with at least one true statement in his diatribe. The Publication Committee is composed of doctors and it is true that they are "unpaid and busy."

But of vastly more moment than these misstatements regarding the publications of the Society are the aspersions cast upon the dead. The attack upon one of the "permanent officers," who is gone and cannot defend himself, is as cowardly as it is false. The charge of "arrogance and lust for power" made against a man who gave years of his life to the upbuilding of the State Society, whose whole heart and soul were devoted to its interests and welfare, will receive the condemnation of every right-thinking member. He has gone, but his works do follow him and need no defense. Multitudes of his friends all over the state will not soon forget this attack upon his memory.

Floyd M. Crandall.

March 21, 1916.

Dr. John Cowell MacEvitt,
Editor, New York State Journal of Medicine.

In connection with your editorial in the March number on the use of animal sera, you quote an unexplained death following immediately an injection of normal horse serum. As no essential particulars as to the condition of the serum used seemed to have been given by Dr. Farrell, who reported the case, nor was the light possible from an autopsy obtained, it evidently falls among the many cases of disease and death that have been reported in which illuminating data were either not available or were not taken, and consequently, of which the cause and effect can not be intelligently determined.

My reason for writing is not to make this comment, but to call your attention to the failure of physicians generally to realize the necessity of passing judgment upon a serum before injecting it. The usual routine of serum administration is for a physician to obtain from a druggist a sealed package of the desired variety and not to open it before he reaches the bedside of his patient. If he then finds it to be cloudy, he either judges that its potency has not suffered from the probable contamination and that no serious results would be apt to follow a subcutaneous injection, even if the usual saprophytic bacteria were present in large numbers. In this last he is right, with the reservation that must be allowed to cover possible contamination with saprophytes of ability to produce unusually poisonous substances, comparable to those of the bacillus botulinus, etc.

In general it may be stated that any cloudiness other than that which constitutes a slight precipitate at the bottom of the container had better cause the preferential use of another sample and that no serum with a definite cloud throughout should be used. For this purpose every package purchased should be opened and inspected before leaving the drug store. Perhaps the common use of cloudy sera does nothing more than produce severe local reactions, but besides it is easily possible for the potency of the serum to be interfered with by contamination.

All sera usually have a slight amount of preservative, but besides should be kept in an ice-box, notwithstanding a statement that appears on some packages that temperatures between 40 degrees and 60 degrees F. are proper. The preservatives used are: chloroform (to saturation) tri-cresol or phenol in from ¼ to ½ of 1 per cent, the first mentioned (chloroform) being preferred for antimeningitis serum (as less irritating to the cord); all commonly fail to prevent at least some development of contaminating bacteria in most commercial *sera* kept for several weeks at room temperature.

Of course sera (including antitoxin) used for intravenous or intra-spinal injections should be absolutely clear.

Very truly,

H. Greeley.

Medical Society of the State of New York.

NOTICE.

The Committee on Publication begs to draw attention to the following resolution which was passed at a meeting of the Committee held on April 19, 1916:

That in the future no correspondence of a personal or abusive character from any source be published in the New York State Journal of Medicine.

Committee on Publication.

COUNTY SOCIETIES.

MEDICAL SOCIETY OF THE COUNTY OF ERIE

Regular Meeting, Buffalo, N. Y., April 17, 1916.

The regular meeting was held in Alumnae Hall, President Barrows presiding.

The Secretary read the minutes of the meeting held February 28, 1916, and the minutes of the Council meetings held March 7, 13, and 24, and April 11, 1916, all of which were approved as read.

Amendments to the By-Laws, which were presented by Dr. Albert T. Lytle at the regular meeting held February 28, 1916, which had been printed in the notice for the regular meeting of April 17, 1916, were read by the Secretary. On motion of Dr. Gaylord, the amendments to the By-Laws as printed in the notice of the meeting were adopted subject to the approval of the State Society.

Dr. Bonnar, Chairman of the Board of Censors, made a brief verbal report on the work of the Censors.

Dr. Gaylord, Chairman of the Committee on Legislation made a brief verbal report of the work of the Legislative Committee.

Treasurer Lytle stated that the By-Laws required him to read the names of those members who were delinquent with their dues, unless relieved from making such report by the Society. On motion the reading of the names of members who were in arrears with their dues was postponed until a future meeting.

The Secretary stated that an invitation had been extended by the Buffalo Historical Society to the Medical Society of the County of Erie to attend a meeting in memory of Dr. Ernest Wende and Dr. Roswell Park, to be held at the Historical Society Building, on Tuesday evening, April 18, 1916. At this meeting Mr. Adelbert Moot will speak on the life and work of Dr. Wende. Dr. Charles G. Stockton will present a paper on Dr. Park. On motion of Dr. Lytle, seconded by Dr. Mann, President Barrows and Secretary Gram were designated to officially represent the Society at this memorial meeting.

Dr. Jacobs, Chairman of the Committee on Membership presented the name of the following applicants and moved that they be elected to membership. After a separate vote on each applicant Drs. William K. O'Callaghan and Wilfred H. Baines were declared elected as new members; Drs. Irving R. Johnson and Lawrence Hendee as reinstated members, and Dr. Henry D. Abbott was received by transfer from the Hudson County Society.

Dr. Harvey R. Gaylord, Director of the New York State Institute for the Study of Malignant Diseases, delivered a popular lecture on the work of the Cancer Laboratory, located in the State Institution, Buffalo, N. Y. This lecture was accompanied by lantern slides, and showed in a general manner the work as it is conducted and what has thus far been accomplished. At the close of the lecture on motion by Dr. McKee seconded by Dr. Mann, a hearty vote of thanks was given to Dr. Gaylord.

The Society then became the guests of the State Institute where it adjourned in a body to make a complete inspection of the various features of the institute such as laboratory, hospital and research work. The various activities were explained to the visiting physicians by Dr. Burton T. Simpson, Department of Pathology; Dr. G. H. A. Clowes and F. West, Department of Chemistry; M. C. Marsh, Department of Biology; T. F. Cooke, Department of X-ray and Radium; Dr. J. A. P. Millet and Dr. Herbert Bauckus, Clinical Work in the Hospital, and Dr. B. F. Schreiner, the activities of the Dispensary Service.

At the conclusion of this inspection a splendid collation was served.

How much the members appreciated this privilege was shown by one of the largest attendance of members at any meeting for a considerable period.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

The Principles and Practice of Perimetry. By Luther C. Peter, M.A., M.D., F.A.C.S., Associate Professor of Ophthalmology, Philadelphia Polyclinic and College for Graduates in Medicine; Ophthalmologist to the Rush Hospital for Consumption and Allied Diseases. 232 pages, with 119 illustrations. Cloth, $2.50 net. Lea & Febiger, Publishers, Philadelphia and New York.

Autoplastic Bone Surgery. By Charles Davidson, M.D., Professor of Surgery and Clinical Surgery, University of Illinois, College of Medicine; Fellow of the American College of Surgeons; Surgeon to Cook County and University Hospital, Chicago, and Franklin D. Smith, M.D., Clinical Pathologist to University Hospital, Chicago. Octavo, 369 pages, with 174 illustrations. Cloth, $3.50 net.

Studies in Surgical Pathological Physiology From the Laboratory of Surgical Research, New York University, 1915. Vol. I. American Geographical Society.

The Involuntary Nervous System. By Walter Holbrook Gaskell, M.A., M.D., F.R.S. Author of "The Origin of Vertebrates," etc., with colored figures. Longmans, Green & Co., 39 Paternoster Row, London; Fourth Avenue and 30th Street, New York; Bombay, Calcutta and Madras. 1916. Price, $1.80 net.

Infant Mortality. By Hugh T. Ashby, B.A., M.D., B.C. (Camb.), M.R.C.P. (London), Visiting Physician to the Manchester Children's Hospital, Pendlebury, Visiting Physician for Children to the Manchester Board of Guardians, Hon. Physician to the Salford Royal Hospital and the Salford Schools for Mothers. Cambridge University Press, Fetter Lane, E. C., London, G. P. Putnam's Sons, New York, 1915. Price, $3.25.

Book Reviews

The Operations of Surgery (Jacobson) Sixth Edition, by R. P. Rowlands, M.S., Lond., F.R.C.S., Eng., Surgeon to Guy's Hospital, Lecturer on Anatomy to the Medical School and Philip Turner, B.Sc., M.S., Lond., F.R.C.S., Eng., Surgeon to Guy's Hospital; Teacher Operative Surgery to Medical School, with 797 illustrations (40 in color). Vol. I., The Upper Extremity; The Head and Neck; The Thorax; The Lower Extremity; The Vertebral Column. Vol. II., The Abdomen. New York, The Macmillan Co., 1915.

Among surgical works there are always a few which stand out preëminently and form a class by themselves. Such a work is the one under consideration. After a critical analysis, one gains the impression that preconceived conceptions are in no wise shocked, that a large sale and careful study would make for better surgery.

It is unlike other works, especially other English works. In appearance, print, paper, and illustrations it is a masterpiece of the bookmaker's art. The material is presented in a most concise, direct and assimilable form. It is a pleasure to read such perfect English in a medical work.

It is noted that although the work is still known as "Jacobson's," Mr. Jacobson had no part in the present extensive revision. It is regretted, though one must confess that so well have Messrs. Turner and Rowlands fulfilled their task one hardly missed the guiding hand of other days.

The two volumes have been increased in size. The arrangement has been somewhat changed in that the second volume is now devoted to abdominal surgery alone. Volume I includes the surgery of the head, neck, thorax, spine, upper and lower extremities. Rowlands and Turner have preserved the personal tone of previous editions. The presentation of indications, contra indications, dangers, and end results is especially valuable. Arthroplasty justifies a more lengthy consideration. Intratracheal anesthesia, in its relationship to the surgery of the chest, mouth, pharynx, and upper air passages might well be made more inclusive.

The very best opinions expressed are those relative to the surgery of gastric and duodenal ulcer. It should be the duty of every surgeon to read these classic contributions. A great deal of unnecessary space is accorded to literal quotations from Lane's work on intestinal stasis. This in spite of the introductory statement made by the authors, "Time will prove whether these views are right or not."

In conclusion, we desire to express a more complete satisfaction in reviewing this splendid work than we have experienced in many years.

Royale H. Fowler.

Manual of Surgery. By Alexis Thomson, F.R.C.S., Ed. Professor of Surgery, University of Edinburgh, Surgeon Edinburgh Royal Infirmary and Alexander Miles, F.R.C.S., Ed., Surgeon Edinburgh Royal Infirmary. Vol. I, General Surgery, fifth edition, revised and enlarged, with 289 illustrations. Vol. II, Regional Surgery, fifth edition, revised and enlarged, with 301 illustrations. Edinburgh, Glasgow and London. Henry Frowde and Hodder & Stoughton, 1915. Oxford University Press, 35 W. 32d St., N. Y. City.

This department has passed judgment upon these volumes in 1912. We note with pleasure and appreciation that certain suggestions and criticisms made at that time of the fourth edition have been accepted and incorporated in the present. We refer especially to the presentation of symptoms of cancer and of precancerous lesions of the stomach. The section on infections of the biliary apparatus, criticised four years ago, requires still further revision. Prodromal symptoms of disease of the gall bladder are not sufficiently emphasized. We note with special delight the passing from this edition of the statement, appearing in the previous one, regarding the so-called latent gall stone being innocent of producing symptoms. A chapter upon the early diagnosis of surgical dyspepsia from the standpoint of the gall bladder, stomach and duodenum might well be included to the advantage of the student. In general terms we suggest greater emphasis upon inaugural symptoms of early functional disturbance rather than upon the picture of the so-called typic attack.

The greater part of the books show careful revision. Various sections have been carefully rewritten, much to the credit of the authors. Of the two volumes under consideration one deals with general surgery, two with regional surgery. The groundwork is well laid. These volumes should be welcome in aiding the student to acquire the elementary knowledge he requires.

R. H. Fowler.

Medical and Veterinary Entomology. A Textbook for use in schools and colleges as well as a handbook for the use of physicians, veterinarians and public health officials. By William B. Herms, Associate Professor Parisitology University California, Consulting Parisitologist California State Board of Health. The Macmillan Co., New York, 1915. Price, $4.00.

This book was written to be "a textbook for use in schools and colleges as well as a handbook for the use of physicians, veterinarians and public health officials." It fulfills this desire of the author very well. It is a valuable contribution to parisitology which so recently has come to be a department by itself in some of our medical colleges.

This work is by the author of "Malaria, Cause and Control," "A Laboratory Guide to the Study of Parisitology," "The House Fly in Its Relation to the Public Health," "House Fly Management" and other books of a similar character. These previous publications give some idea of the fields covered in the work under review. It has to do with rats, mice, fleas, lice, bed bugs, roaches, moths and all the other annoying guests to which flesh—human, horse or hog—is heir.

The treatment of cesspools, swamps, dung heaps, and sugar bowls so as to starve or kill the invading pests by methods of blockade and a general war of fightfulness are outlined in pleasing and graphic detail. For those interested from any angle in the problems of sanitation and sanitary control by town, city, state or nation, this book is especially enticing. To the man who has ever itched it brings back vividly the past, and to all it presents a wealth of information presented in a scholarly manner.

Thurston H. Dexter.

Ophthalmoscopic Diagnosis for General Practitioners and Students. By George W. Jean, A.B., M.D., Instructor in Ophthalmoscopy and External Diseases of the Eye in the School of Ophthalmology, New York Eye and Ear Infirmary, Assistant Surgeon New York Eye and Ear Infirmary, Instructor in Ophthalmology, University and Bellevue Hospital Medical College, and Ophthalmic Surgeon Williamsburg Hospital, etc. 68 illustrations. E. B. Meyrowitz, Inc., London, New York, Paris.

This modest little volume may properly be regarded as a model text-book for those students who are learning to use the ophthalmoscope. The necessary details regarding the technic of ophthalmoscopy are carefully explained. The essential points in diagnosis are clearly and concisely stated. The cuts, selected from various standard authors, represent the ophthalmoscopic findings of the typical and more common diseases of the fundus oculi. Finally, credit should be given to the publisher for his excellent taste. Clear type, a fine quality of paper and a neat binding add much to the pleasure of studying this valuable work. J. W. I.

Oxford War Primers.

Wounds in War, Their Treatment and Results. By D'Arcy Powers, M.B., Oxon., F.R.C.S., Eng., Surg. St. Bartholomew's Hosp.; Lieut. Col. R.A.M.C. (T.F.), London.

Medical Hints For the Use of Medical Officers Temporarily Employed with Troops. By J. Edward Squire, M.D. (Lond.), F.R.C.P., D.P.H. (Camb.), Consult. Phys. Mt. Vernon Hosp. for Diseases of the Chest, etc.

Wounds of the Thorax in War. By J. Keough Murphy, M.C. (Cantab.), F.R.C.S., Surgeon Miller General Hospital, South East London, and Paddington Green Children's Hospital, No. 1.

Abdominal Injuries. By Rutherford Morison, Professor Surgery Durham University, and W. G. Richardson, M.B., F.R.C.S., Lt. Col., R.A.M.C. (T.), 1st Northern General Hos. and Surgeon Royal Victoria Infirmary.

Gunshot Injuries of Bones. By Ernest W. Hey Groves, M.D., M.S. (Lond.), F.R.C.S. (Eng.), Surgeon Bristol General Hospital, Consulting Surgeon Cossham Hospital, Captain R.A.M.C. (T.).

Injuries of Joints. By Robert Jones, Ch.M., F.R.C.S. (E. & I.), Director of Military Orthopedic Hospital, Liverpool, Consult. Surg. Queen Mary's Convalescent Auxiliary Hospitals; Major R.A.M.C. (T.F.).

Surgery of the Head. By L. Bathe Rawling, M.B., B.C. (Cantab), F.R.C.S. (Eng.), Surgeon and Senior Demonstrator Operative Surgery St. Bartholomew's Hospital; Major R.A.M.C. (T.F.).

Nerve Injuries and Shock. By Wilfred Harris, M.D. (Cantab), F.R.C.P. (Lond.) Physician St. Mary's Hosp., London, and Hosp. Epilepsy and Paralysis, Maida Vale. London: Henry Frowde, Hodder & Stoughton, 1915. Oxford University Press, 35 W. 32d St., New York.

Eight little volumes constitute a series of "War Primers" published in the stress of military activity to meet the needs of medical men called to serve in the British army. These little books are written along broad lines and deal with diagnosis and treatment.

The Great War has tended to shaken confidence in antiseptic methods of treatment. There has been a reversion to the pre-Listerian days. D'arcy Power points out that the conditions of highly fertilized soil, swarming with pathogenic germs, together with life in rain-filled trenches, the impossibility of attending to personal hygiene, and the difficulty of rendering immediate first aid, are the main responsible factors for the recrudescence.

Much knowledge concerning wounds of war familiar to the English surgeons' ancestors, serving in the troublous times of Charles the First and the Commonwealth, has been revived to meet present conditions. Much, of course, has been unlearned. Marked advances have resulted from the use of the X-ray, bacteriology and the theory of immunity. The latter have afforded protective sera and vaccines. However, the abolition of infection and suppuration (possibly a Utopian dream), although the period has been shortened and controlled and reduced, though hospital gangrene and pyemia and the dreadful conditions arising out of the Napoleonic and Crimean Wars and our own Civil War are less often seen, the mystery of the ages still remains the problem of the present Great War.

To those surgeons who have grown rusty in the treatment of abdominal injuries, injuries of the head, thorax, the bones and joints, nerve injuries and shock, these little books will prove to contain many helpful hints.

A tribute must be paid to sanatarians and those concerned in the prevention of disease incident to camp life and the campaign for the lessening of the enormous wastage from sickness seen in the past. In this regard the Great War is a triumph for preventive medicine. Would that the surgery of wounds had gained its pace.

Post-Mortem Examinations. By William S. Wadsworth, M.D., Coroner's Physician, Philadelphia. Octavo volume, 598 pp., 304 original illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $6.00 net; half morocco, $7.50 net.

This is a substantial book of 600 pages, with 304 photographic illustrations of unusual merit. The subject is treated with thoroughness and the literary style compels interest. The chapters on infants and on gunshot wounds and stab-wounds are especially enlightening. One might wish that some of the sections under Medico-legal Post-Mortems dwelt less in generalities; or better yet, that the generalities were retained with an added elaboration of details. Such change is especially desirable in the consideration given to sexual crimes and to poisons.

However, the criticism perhaps is not a fair one, in view of the wealth of material in the book as a whole; for as the author states, referring to poisons, "Little can be done with such a subject in a small section."

The book is one of the best works on post-mortem examinations that has been published.

Thurston H. Dexter.

Injuries of the Eyes, Nose, Throat and Ears. By Andrew Maitland Ramsay, M.D., F.R.F.P.S. (Glasgow), Ophthalmic Surgeon, Royal Infirmary, Glasgow, Major R.A.M.C. (T.F.); J. Dundas Grant, M.D., F.R.C.S. (Eng.), late Major R.A.M.C. (Post Office Rifle Volunteers), King George Hospital, London, Lord Knutsford's Special Hospital for Officers; H. Lawson Whale, M.D. (Camb.), F.R.C.S. (Eng.), Captain R.A.M.C. (T.F.), formerly No. 13 General Hospital, British Expeditionary Force, overseas, the County of London War Hospital, Epsom; and Charles Ernest West, F.R.C.S. (Eng.), Aural Surgeon to and Lecturer on Aural Surgery at St. Bartholomew's Hospital, Captain R.A.M.C. (T.F.). London: Henry Frowde, Hodder & Stoughton, Oxford University Press, Warwick Square, E.C., 1915.

This work of pocket size is intended for medical men in the war zone; it is likewise full of interesting results of the experience gleaned in the treatment of the wounded suffering injuries of the eye, ear, throat and nose in the present European war. Synopses of cases are of extreme interest. Thus, condensed by reviewer: A case of shrapnel wound of antrum was followed by tetanus, pus in antrum was drained and the pieces of shell removed, but eight days ofter operation, and the fourteenth after the injury, tetanus developed. Antitetanic serum 1500 units was administered and repeated on the third and fifth days thereafter. Recovery. Foreign body (round piece of tin) in the œsophagus; skiagraph located same at first dorsal vertebra. The œsophagus was opened in the left posterior triangle of the neck and foreign body removed. Recovery. This little book is running over with information from cover to cover, and the case reports are of graphic interest as showing the special work now being accomplished in the field hospitals.

William C. Braislin.

The Tonsils and the Voice, in Science, Surgery, Speech and Song. By Richard B. Faulkner. The Presbyterian Book Store, Pittsburgh, Pa. Price, $2.00 net. Four hundred pages. Illustrated. Cloth DeLuxe.

This book of 381 pages, containing a frontispiece portrait of the author, is apparently addressed to the singing profession. It is chiefly a compilation of the answers to a large number of questions addressed by the author to prominent singers and throat specialists.

The work is plainly a book for singers and to this end the author has properly handled the subject by beginning at the most elementary details. Several interesting facsimile autograph letters of prominent singers are contained in the book. W. C. B.

Nursing and Care of the Nervous and Insane. By Charles K. Mills, M.D., Prof. Neurology, University Pennsylvania. Third edition. Revised by the author, assisted by N. S. Yawger, M.D., Instructor in Neurology, University of Penn. J. B. Lippincott Co.

The present edition, like its predecessors, "is chiefly intended to recall facts regarding nursing obtained by experience." The book, therefore, is elementary in character, but as a simple guide to the nurse it admirably fulfills its purpose. The chapters dealing with epilepsy, fibrositis and insanity have been especially brought up to date; and new illustrations concerning the application of electricity by the nurse added. A chapter on hydrotheraphy has been added; and in its present form this little manual presents the essential features of the nursing of the insane and nervous patients in a form which is easily understood and remembered.

Arthur C. Brush, M.D.

In Memoriam

Wisner Robinson Townsend.

Memorial and Resolutions Adopted by the Medical Society of the County of New York, at the Stated Meeting, April 25, 1916.

In the death of Dr. Wisner Robinson Townsend, M.D., the profession of this city and state has lost a member to whom it is under great obligations. It was due to Dr. Townsend, more than to any other one man, that the amalgamation of a divided and quarreling profession was brought about. His genial personality smoothed out the hurt feelings so that men of divers opinions could agree to meet and harmonize on a common ground. All appreciated his quick wit; all respected and admired his integrity; all trusted his judgment. Dr. Townsend was a man possessing rare executive qualities. In all the medical societies and various groups of which he was a member, the members turned to him as the executive officer appreciating that he would be able to bring to pass the issue of affairs that they desired to accomplish. Those among whom he worked realize that they have lost a kind and loyal friend. Dr. Townsend carried into his profession the vigor of his personality and received from his patients an unusual degree of devotion in return.

Therefore, Be It Resolved, That the Medical Society of the County of New York spread upon its minutes this record of the loss they have sustained in the death of Dr. Wisner Robinson Townsend, and be it further resolved, that they transmit a copy of these minutes to the family of Dr. Townsend.

Committee. { Alexander Lambert, *Chairman,*
Floyd M. Crandall,
Wendell C. Phillips,

Resolutions Adopted by the Society of Alumni of Bellevue Hospital at the Meeting held May 3, 1916.

Wisner Robinson Townsend.

The Society of the Alumni of Bellevue Hospital desires to place upon its records an expression of its profound sense of the great loss which it has sustained in the death of Dr. Wisner R. Townsend. With these words, Dr. Townsend two years ago began a memoir of Dr. Joseph D. Bryant. None could be more fitting to introduce this brief note of appreciation of Dr. Townsend by this Society.

He early became a member, and was elected President twenty-four years ago. Since retiring from that office he never lost his regard for the Society, and showed his interest by regular attendance and by frequent service upon its committees. To him the Society owes much, for he gave to it liberally of his time and talents. His inflexible integrity and high professional ideals won the confidence of all with whom he came into personal contact. In addition to the loss felt by physicians, not alone in New York State, but through many States of the Union, this Society feels it a particularly personal one. The peculiar friendship existing between the Alumni of Bellevue Hospital renders the death of a member a truly personal loss.

Many who knew Dr. Townsend loved him because of his untiring vitality and the buoyancy of his manner, and did not fully realize the profound seriousness of his nature. Beneath his breezy exterior was a character of deep seriousness, and he was ever a slave to his sense of duty. Few were more generous, few more loyal to friends and professional associates, few were cleaner in their lives and speech. His executive and business ability was extraordinary. He had an unusual capacity for organization, and was methodical to an extreme degree in every detail pertaining to business and official duties.

To him in large measure was due the reconciliation which took place ten years ago in the divided medical profession of this State. Through endless discouragements, he maintained an optimism and a determination that the reconciliation should come about, which was a powerful factor in accomplishing that desired result.

His greatest work, the work that will stand as a monument to his memory, was the organizing of the activities and the placing upon a sound business basis of the Medical Society of the State of New York, which numbered over 8,000 members at the time of his death. Beginning his duties as Secretary when everything was new and untried and radical changes in organization had been made, he has left an impression which can never be effaced from that great organization.

His was indeed a true and manly character. He has left to his sons the best legacy that a father can leave, an honored and unsullied name and the memory of a well spent life.

The Society deeply grieves his loss and expresses to his family its sincere sympathy in their bereavement. It directs that these resolutions be placed on its records and that a copy be sent to the medical journals and to his family.

Committee. { FLOYD M. CRANDALL,
ALEXANDER LAMBERT,
CHARLES E. QUIMBY.

MEMORIALS AND RESOLUTIONS ADOPTED BY THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK, AT THE STATED MEETING, APRIL 25, 1916.

CHARLES HENRY RICHARDSON.

A Sketch.

Charles Henry Richardson, was born in New York City, July 13, 1860. His early education was obtained at the old 13th Street Public School, after leaving which he entered the College of the City of New York. After graduation he began his medical studies at the College of Physicians and Surgeons, New York City, from which he graduated in 1884. He at once began general practice to which he devoted his life.

He was connected with the New York Polyclinic and Northeastern Dispensary for many years, and up to the time of his death was Consluting Physician to the Fordham Home for Incurables.

He was married April 20, 1899, to Isabel Wootton, who with his aged mother and father survive him.

He brought to his chosen field of labor a keen mind and fine discernment and a wonderful personality, a devotion to his work that was never satisfied until all that could be done had been. He was a deep and careful thinker and greatly interested in the affairs of men. He was one of the best read men in the profession and never at a loss for an apt quotation and always showed a fine sense of humor. He seemed to care little for the places of honor in the profession, which might easily have been his if he would have accepted them, but he knew men and what they most needed and was always ready with wise counsel on the various executive boards upon which he served.

His work as consultant diagnostician was recognized by his colleagues, where his large experience and good judgment gave to his opinion great weight.

He was a member of the Medical Society of the County and State of New York, a Fellow of the New York Academy of Medicine and of the American Medical Association and of the Medico-Surgical Society. For five years he served on the Committee on Admission of the New York Academy of Medicine and for one year as a member of the Council. He was a Delegate from the State Society for two years to the American Medical Association. In 1904 he was elected Treasurer of the Medical Society of the County of New York, and served until his death. When he entered upon his duties the task before him was worthy a man; there were no funds and no system, and from the chaos he developed order, and through his efforts the Society was placed upon a sound financial footing, where it stands today. As a member of the Comitia Minora his wise counsel and sound judgment have always been a deciding factor in its deliberations. His executive ability and understanding of affairs, rendered his services on this Board of incalculable value. For this branch of human labor he was particularly well equipped, and through the succession of years and the changing of the personnel of the Comitia Minora, the soundness and fairness of judgment which he has shown has always been recognized. To the work of the Comitia Minora he added a voluntary service on the Board of Censors which only ended when failing health made this additional effort impossible. In all his work, through all these years on behalf of these bodies he never showed a selfish motive, his only thought was for the best good of our Society that he loved so well, and the profession to which he had devoted his life. Few will ever know the real value of this service or the task it imposed upon the one who performed it, but all of our profession have been and will continue to be benefited by the work of this man among men.

In mental attitude he was a stoic, in principle absolutely honest, and his whole life exemplified his convictions. The end came as a man should go, at the end of a night and the dawn of another day, with two watchers by his bedside that admired and loved him most in life, and revered him as a memory. The ranks close in and the work must go on, but in his death our loss is beyond repair.

"There was the Door to which I found no Key;
There was the Veil through which I might not see:
Some little talk awhile of Me and Thee
There was—and then no more of Thee and Me."

Committee. { JOHN VAN DOREN YOUNG, M.D., *Chairman*,
HOWARD LILIENTHAL, M.D.,
GEORGE D. STEWART, M.D.,

Deaths

GEORGE H. GODSON, M.D., Harmon, died April 20, 1916.

R. J. HOWE, M.D., Watkins, died March 28, 1916.

JAMES M. MOORE, M.D., Albany, died March 21, 1916.

NATHAN OPPENHEIM, M.D., New York City, died April 5, 1916.

CHARLES H. RICHARDSON, M.D., New York City, died April 5, 1916.

OSCAR JOAB STAFFORD, M.D., Portchester, died April 12, 1916.

RICHARD STEIN, M.D., New York City, died April 25, 1916.

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ORIGINAL ARTICLES

THE NAUHEIM METHOD.*

By SIMON BARUCH, M.D.,

NEW YORK CITY.

MY reasons for presenting the Nauheim Method as a subject for discussion are—

First.—The success of this method of managing cardiac diseases has been established, during the most enlightened period of the history of medicine, not by the statements of patients, which are often unreliable, but by observations of specialists, who have demonstrated their confidence by continuing to send their patients to this mecca of heart cases.

Second.—The mineral springs of Saratoga and certain California springs furnish the most important component of the waters that have made Nauheim famous, viz., carbonic acid gas, and require the addition only of certain salines to be equal to those of Nauheim.

Third.—I have been painfully surprised to discover that the large proportion of baths ordered as Nauheim baths are given with simple carbonic acid water from a cylinder of gas or artificially produced by mixing a definite solution of bicarbonate of soda with either muriatic acid or sulphite of sodium cakes, or formic acid. The salines are either omitted or a few pounds of salt, or a natural brine or sea water, or, as in one institution, sodium chloride and bicarbonate of soda, which actually counteracts the desired irritating action of the salt, misrepresent them.

Fourth.—It is my aim to obviate this unfortunate substitution, which may be due to the prevailing lack of agreement upon the rationale of the Nauheim method, by offering an explanation of the action of certain elements of the latter, which, though novel, has a rational basis.

Fifth.—My warrant for venturing upon this subject may be found in the historical fact that the method consists, as is well known, of the application of baths, in which the patient is submerged entirely, excepting the head, in water, containing carbonic acid gas and certain salines, chief among which are the chloride of calcium and sodium, which in concentrated form would produce a decided hyperæmia. These baths are given methodically, according to the indications of each case and the effect of each bath, and they are accompanied or followed by certain passive or resisting movements, which offer a systematic but mild exercise of the principal voluntary muscles of the body. Success of the Nauheim method depends upon faithfully following the method.

ARTIFICIAL CO^2 BATH.

In 1896 I brought from Germany the Sandow tablets, consisting of cakes of sodium sulphite and a package of bicarbonate of soda, for the artificial preparation of carbonic acid baths, which I gave to Mr. H. A. Cassebeer, who prepared the Cassebeer Nauheim Baths. The Triton preparation resembles the latter.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

In 1902 I visited the Virchow Hospital at Berlin. Here Dr. Laqeur used the ZEO bath, which consists of a solution of formic acid and a package of bicarbonate of soda. From experiments in the Vanderbilt Clinic, I ascertained its advantages, not being corrosive and more quickly prepared. The CO^2 bubbles were more abundant and the consequent hyperæmia of the skin more pronounced.

These preparations had never been used in this country before as far as I know.

In 1896 I visited Nauheim for the first time, and since then I have made two visits, the last being in 1913. It has been my good fortune to come in contact with Drs. Heineman, Groedel, Schott and Honan, during these visits. The Nauheim method has passed through a gradual evolution, in regard to its theory and practice. I desire to emphasize that the entire series is a methodical training of the insufficient heart to enable it to resist definite attacks made upon the cutaneous periphery, by baths and exercises, alternating with rest. *Indeed we have here the same principle which I have so frequently dwelt upon in the application of water in health and disease, viz.,* that water below the temperature of the skin produces an effect upon the blood vessels and nerves of the skin, which I have termed "neuro-vascular training," by means of which the heart and central nervous system are raised in functional efficiency, so that the organs supplied by them are restored to normal activity, which has been disturbed by toxic agencies, or by products of abnormal tissue change, due to faulty modes of living.

In the most recent publication of Professor J. M. Groedel, this veteran of Nauheim confirms my view, when he writes, "We have it in our power to put into action the excitations which drive the heart to higher activity, by gradual approach. We may stimulate the heart to a greater or less degree, within definite limits, through the intensity of the thermic excitation, namely, low temperature of the water."

Formerly the Nauheim doctors began the series with baths of indifferent temperature, about 34 c. (93.2 F.), with small saline and carbonic acid content. This was followed slowly by a gradual decrease of the bath temperature, until 30 c. (86 F.), while at the same time the saline and carbonic acid content was increased and the duration of the bath raised from eight or ten minutes to fifteen or twenty minutes, giving at first the bath two days in succession, or every second, third or fourth day. Recently this course has been abandoned for a more individualizing scheme, which is based upon the actual effect of each bath, or small series of baths, upon the patient and the type or character or the cardiac insufficiency.

In Nauheim no treatment is administered for the higher grades of circulatory insufficiency in persons, who, for instance, when at rest or under the slightest movement suffer from dyspnœa, or who present large dropsical effusions. I have in mind a case of the former type, in which I advised against a journey to Nauheim, but was not sustained by an eminent specialist, who had advised him to consult me about the Nauheim trip, although I had endeavored to neutralize his obstinacy by telling him that he would return in a coffin. He arrived in Nauheim, but was advised not to remain longer than necessary to recuperate from the journey. He did arrive home in a coffin, dying one day before the ship arrived.

It was the merit of Beneke to retain cases that were promising and to discourage others from remaining in the vain hope of recovery. His successors, though not so rigid, have followed this course, with the result that Nauheim has established a reputation for the amelioration and cure of heart disease. Let me counsel colleagues practicing in Saratoga to follow Beneke's example.

RATIONALE OF THE NAUHEIM BATH.

This may be divided into two essential elements, (a) effect of the carbon dioxide, (b) of the salines.

Action of Carbon Dioxide.—From experience on my own person, together with observations made upon many other individuals in Bad Nauheim and in Saratoga Springs, the following are the notable objective and subjective effects:

On entering a bath, with Hathorn No. 1 water, at 90 F., my first impression was one of decided coolness, with contraction of the scrotum. This coldness disappears so soon as bubbles of CO^2 gas begin to accumulate upon the skin. A prickling sensation begins, sometimes painful, on touching, in the scrotum, which feels as if covered by a very thin layer of dry varnish. If these bubbles are disturbed on large surfaces, coolness is again felt, quickly, however, replaced by warmth, so soon as the gas bubbles again are seen on the skin. The skin shows decided hyperæmia wherever it is in contact with the gas bubbles. Decided warmth is felt, together with a sense of comfort and bien aise, that is not felt when plain cold water produces reaction redness. In fact the latter only reaches similar intensity of redness but never the same intensity of warmth, after very cold procedures, in vigorous subjects. Certain it is that I have never seen a patient in the condition which is met in the majority of cardiac cases, that could bear a cold procedure with plain water of sufficiently low temperature to produce a hyperæmia equal to that which the most depreciated cardiac case can be trained up to bear with the CO^2 bath.

LOCAL ACTION OF CO^2 WATER.

The hyperæmia, which is invariably manifested when the individual lies in a CO^2 bath, by redness of the skin, cannot be due to reflex action, through the vasomotor system, because it is confined only to the parts exposed to the CO^2 water. A careful study of the experiments and observations made by others confirm my conviction that the hyperæmia is due to a specific mechanico-chemical irritation by the CO^2 gas. (Oxygen bubbles in the Ozet Bath do not produce hyperæmia.)

Ottfried Miller and his school have demonstrated by painstaking observations, the absence of decided vasomotor action, because of absence of resistance at the periphery. There is no pletysmographic volume increase in the arm made red and hyperæmic by CO^2. This has been successfully refuted by Arthur Hirschfeld of Brieger's Clinic, who shows that Miller's pletysmograph rested partly in the bath water. Nevertheless, both agree upon the most important fact that the peripheral arteries are contracted slightly. May this not be due to the constringing action of the absorbed CO^2 upon their muscular coats, which come in direct contact with the gas? More of this later on. The almost invariable slowing of the pulse and its somewhat heightened tension, find in this theory a more rational explanation.

Another undeniable effect of the CO^2 upon the skin is a heightening of cutaneous sensibility, which has been referred to. I regard this phenomenon as explaining the intensifying effect of CO^2 on temperature sensation, whether below or above the point of indifference, which averages in a plain water bath for ambulant patients about 33 c. (91.4 F.) and 35 c. (95 F.) in persons warmed by lying in bed previous to coming in contact with plain water. O. Miller states that this neutral point is (in the CO^2 bath for ambulant patients) about 34 c. (93.2 F.). Despite the fact that the skin feels a sensation of warmth, the action of the CO^2 bath is equivalent to that of water of lower temperature in its influence upon the vasomotor system (Miller). The first time I had occasion to utilize this singular fact was in a desperate case of typhoid fever, I saw with Dr. Joseph Fraenkel, of New York, several years ago. The doctor had been advised by two eminent consultants against using a cold bath and to rely upon alcoholic stimulants to rescue the patient from desperate toxæmia, which blunted all reflexes. Believing that it was imperative to arouse the reflexes by refreshment with cold water and fearing to advise the Brand bath, a tubbing in water at 80 F. was advised, with Cassebeer's Nauheim salts, to add a chemical to the thermic and mechanical peripheral excitation. Though there was not the slightest visible response to the cold water and none even to an affusion at 50 F. her pulse improved in tension and frequency and she slept for three hours after the first bath and awoke from an unconscious state of several days' duration, during the fourth four hourly bath, the pulse improving after each one. (Ueber Reaction nach kalten Prezeduren—Congress fuer Naturforscher und Aertzte in Karlsbad, 1902.)

This experience was repeated in other consultations, so that in typhoid fever I no longer hesitate to order certain cold baths, from which I formerly refrained in depreciated cases when fortified by CO^2 gas. My experiments have demonstrated the enhancement of sensibility in the peripheral nerves by CO^2 baths, so that the clinical fact above mentioned is accounted for and we are able to deduce from them a phase of therapeutic action of CO^2 baths in cardiac insufficiency that has been hitherto obscure.

The bubbles of CO^2 gas which envelop the body as it were in a network, isolate the portions so protected against extremes of temperatures, so that the beneficial results referred to above are attained. Temperatures that would be obnoxious, either above or below tolerance, are borne with comparative comfort when the water contains CO^2 bubbles.

The systemic effect from absorption of CO^2 is more important in my estimation than is generally believed. Indeed absorption of CO^2 gas is the one positive fact undisputed by all authorities. Ottfried Miller and his aids mention it, but do not appear to realize its importance. (*Sammlung Klinischer Vortraege*, No. 711-14, 1915.)

The *absorption* of CO^2 through the skin and its activating of respiration has been indisputably established by the valuable investigations in Von Merings's Clinic at Erlangen by H. Winternitz (*Deutches Archiv. f. Klin. Medizin*, Bd. 72) who *regards this action as specific in CO^2, being absent in other cutaneous irritants* and he affirms an increase of absorption in the presence of salt solutions. This is a neglected but important fact, which explains what hitherto has been obscure, as I shall show.

In commenting upon my new rationâle of the Nauheim Bath, Professor Groedel protests that there is already a fatal increase of CO^2 in many cardiac cases. In rebuttal I would point to the fact that we deduce from animal experiments with toxic doses of drugs, our most valued therapeutic results from safer doses of the poisons. Moreover the cyanosis present in extreme cardiac failure is due more to the absence of oxygen than to accumulated CO^2. That CO^2 circulating in the blood in excess stimulates the respiratory center is a well-known physiological fact; an increase of 2 per cent causing a tenfold energy of respiratory activity in health (Burton-Opitz). Starling (*Lancet*, 1915) gave CO^2 the first place as the hormone or chemical regulator of respiration. Therapeutically this enhancement of respiratory activity becomes of immense import, in that it must influence favorably the entire intrathoracic circulation, more especially the venous flow. The right heart is unloaded and the diastole prolonged, all of which must bring great relief from stases, which, by their production of œdemas and retention of toxines from faulty tissue change, give the bedside clinician most anxiety and but too often close the scene. I am disposed to regard this action of the absorbed CO^2 as most important in temporarily restoring lost cardiac equilibrium. That judicious adaptation of the bath to each individual case is required is evident. It is remarkable that other clinicians do not lay more stress upon this demonstrated action of CO^2.

Distribution of blood as manifested by blood pressure, pulse frequency, volume and tension, has been a bone of contention among investigators, Ottfried Miller and other laboratory reporters claim some increase of blood pressure, while Groedel, Jacob and others who practice with natural CO^2 baths, do not find increase of blood pressure to any extent. Nevertheless, all report almost invariably an improvement in the pulse, evidencing bettered cardiac conditions. My own observation, made with Saratoga waters published in the last number of the *N. Y. Medical Journal* confirms their view.

This difference, in the observations of equally reliable clinicians may be explained as follows: The action of water, air and CO^2 gas upon the skin is determined by the temperature conducting capacity of these agents. Air and CO^2 gas differ materially in *capacity of absorbing* temperatures (cold and heat) and water *absorbs* temperature with far greater rapidity than either. The point at which the skin is indifferent to water, air or CO^2, as ascertained by changes of blood pressure is 34 to 35 c. (93 to 95 F.) for plain water, and it is lower for atmospheric air, in ordinary humidity, 20 to 25 c. (68 to 77 F.) and for CO^2 gas it is still lower, viz.: 13.5 to 14 c. (57 F.). According to Senator and Frankenheimer (*Therapie der Gegenwart,* 1904) air, water and CO^2 gas differ still more positively in *conductivity* or capacity for transmitting temperature to objects. Taking the conductivity of air to be 100 that of CO^2 gas is inferior (almost one-half) to that of air, and almost infinitesimal when compared to water (1 to 54). Therefore, CO^2 conducts its own temperature so slowly to the skin that it must be warmed, by the temperature of the water, long before the skin can be affected by it; for example, if the temperature of the water at 90 F. is conveyed to the skin in one-tenth of a second, the CO^2 temperature would require 540 seconds (nine minutes) to reach the skin, were it not held in the water. This being the case, the water, which absorbs temperature readily, is endowed with the temperature indifference of CO^2 but slightly. The water temperature always dominates, because of its great conductivity, both in the low and high temperature baths. This confirms the results of my clinical observation. ("Principles and Practice of Hydrotherapy," Wm. Wood & Co., Third Edition, p. 51.)

In my estimation, a potent influence upon the circulation has been overlooked by all observers, viz.: the direct stimulation of the heart muscle by absorbed CO^2. We have experimental warrant for such cardiac stimulation in the fact that animals poisoned by CO^2 die with the heart in systolic contraction.

BLOOD PRESSURE.

Weiss and Kommerell (*Ueber die physiologische Wirkung der Kohlensaure, Volkmann's Sammlung,* No. 711-14, 1915) have made some interesting experiments on the difference between the plain and CO^2 bath, to which I have added some data of importance.

In a CO^2 bath the body is covered by a net or jacket of gas bubbles or pearls, which are warmed by the water. This would explain theoretically the remarkable dualism of a neutral bath in CO^2 water and its tendency to lower blood pressure, despite the tonic condition of the peripheral (capillary) vessels, but Ottfried Miller has shown practically that "while there is at first a rise in blood pressure for fifteen minutes, that later, in ten minutes, the pressure falls steplike, all of which is due to warming action of the water, upon the CO^2, which is raised above its normal point of indifference (natural temperature)." Prolongation equalises water and CO^2 temperature.

Therefore the sensory excitation depends upon the number of gas bubbles and the duration of the bath. This demonstrates a chemico-mechanical excitation. In the laboratory they use artificial CO^2. I believe also that a natural CO^2 water acts differently, because the bubbles are finer and it contains more dissolved CO^2. The artificial, on the contrary, contains more free CO^2 gas, which escapes more easily as is proved by the presence in the layer of air above an artificial CO^2 bath of 17.25 per cent, while the air above the natural CO^2 bath shows only 0.89 F. (Beerwald and Von Heyde, Balneological Congress, 1909.)

Moreover experiments made under my direction, by Mr. Herbert Ant, State Chemist, of the Reservation Commission at Saratoga Springs, last December, show that the total gas available from a strong CO^2 bath, prepared with hydrochloric acid, 12 oz. and bicarbonate of soda, 8 oz., is less than 11 per cent actually found by chemical experiments, of which only 3⅓ to 4⅔ per cent is supersaturation. Recently a CO^2 bath made with 1½ lb. bicarbonate of soda and 2½ lb. hydrochloric acid, produced 17 per cent CO^2 gas, immediately after solution (6.75 per cent supersaturation). At Nauheim, the presence of at least 25 per cent of gas as supersaturation is considered essential. In Saratoga, the Hathorn No. 1 water, when first drawn into the tub ranges from 33 to 35 per cent supersaturation and when the patient is actually taking the bath, there is still from 25 to 27 per cent of gas, ascertained by the Haertl Shaker.

The contrast effect between the CO^2 gas and water, which Groedel dwells upon, as important for thermic excitation, must be more pronounced in the artificial bath, with which Ottfried Miller and his school experimented, namely, that produced by hydrochloric acid and bicarbonate of soda, than in the natural bath.

There are other elements in this problem, which must influence the physiological action of the artificial carbonic acid bath; first, uncertainty from the size of the tub. The calculation of artificially prepared carbonic acid should be made according to the size of the tub, which differs from 45 to 75 gallons; otherwise it will be too strong or too weak; second, the fact that in the artificial bath, carbonic acid gas is rapidly evolved and passes off and its temperature cannot be quickly equalized with that of the water, would change its physiological action, unless the bath is longer than is regarded as safe. On the other hand, in the natural CO^2 bath, as given in Saratoga, Nauheim, Marienbad, Kissingen and Franzensbad the carbonic acid being in age long contact with the water is received by the skin, of the same temperature as the water and in the same percentage, furnishing an unvarying action, which is reliable for therapeutic purposes, whether the tub be small or large. There cannot be any doubt, therefore, of the superiority of the natural carbonic acid water over the artifically prepared, in therapeutic effect.

Vasomotor Effect.

I have already mentioned that the hyperæmia of the skin is not due to vasomotor action, because it is only discovered in parts that are exposed to the CO^2 bath. It is possible that Groedel's idea that the contrast action, produced by the difference of the temperature between parts covered by the CO^2 and other uncovered parts may produce some excitation of the sensory terminals.

But the main vasomotor action ensues when, as I have shown ("Principles and Practice of Hydrotherapy," Wm. Wood & Co., 1908, p. 50), the bath temperature is reduced below the neutral temperature (which is about 34 c. or 93.2 F.) for CO^2 water. The lowest temperature prescribed by Groedel and others, being 30 c. (86 F.) must produce some reflex vasomotor effect by excitation of the peripheral nerve endings, which fulfills my hydrotherapeutic law, viz.: the degree of difference between the water temperature and skin temperature governs the intensity of the peripheral excitation, and therefore of the reflex vasomotor action. A carbonic acid bath of 94 F. (neutral) would be indifferent to the skin, while a bath of two to seven degrees lower, which is not uncommon in Nauheim, would produce thermic nerve excitation.

In commenting on my new theory of the action of carbonic acid baths Groedel writes that "It is unnecessary to assume a direct effect from absorbed CO^2 gas upon the involuntary muscle fibers, in order that there should be an irritant action. The mechanical irritation of the gas bubbles, upon the peripheral nerve endings would suffice for this purpose; secondly, it is questionable whether or not we have here a thermic excitation through cold, in a bath of 32 c. (89.6 F.), to which I should reply that a difference of 3.4 c. between the bath water and the skin is certain to arouse a thermic excitation in the sensory terminals of the latter and produce reflex vasomotor action, and replying to the first, there is no such a mechanical action from bubbles in the oxygen (Ozet) bath, in which reddening of the skin is absent."

Specific Action of CO^2 Water Upon the Cutaneous Muscular Structures.

Experiments made by myself in Bad Nauheim and in Saratoga Springs, have convinced me that a CO^2 bath produces on the unstriated muscular structures of the skin a constringing action similar to but milder than that produced by plain cold water. This constringing of the skin probably offers a mild but positive resistance to the flow of blood in the large peripheral surface, with the result of enhancing cardiac energy.

Judging from the susceptibility of the dartos of the scrotum to cold as manifested by contraction of its cutaneous structures, I utilized this peculiarity of the scrotum for the purpose of ascertaining the effect of the CO^2 waters of these springs. There was noted an unmistakable formation of rugæ in the scrotum of a man emerging from the Sprudel No. 12 Bad Nauheim, as indicated in this photograph. Fig. 1 and 2. (See also the *N. Y. Medical Journal* of the 13th inst. for others.)

There is no reason to doubt that the same constringing effect is produced upon the unstriped muscular fibers in the cutaneous surface of the entire body, though not so perceptible to the eye. It is not unreasonable to assume that this muscular contraction, to the effect of which I have already referred in connection with compressing the capillaries furnishes added resistance at the periphery, which

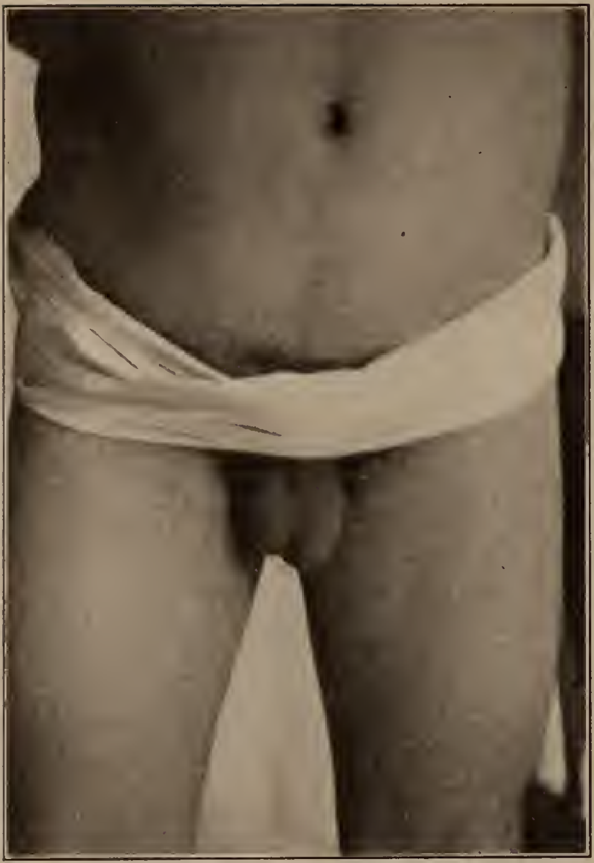


Fig. 1.—Before entering Sprudel XII. Bad Nauheim.

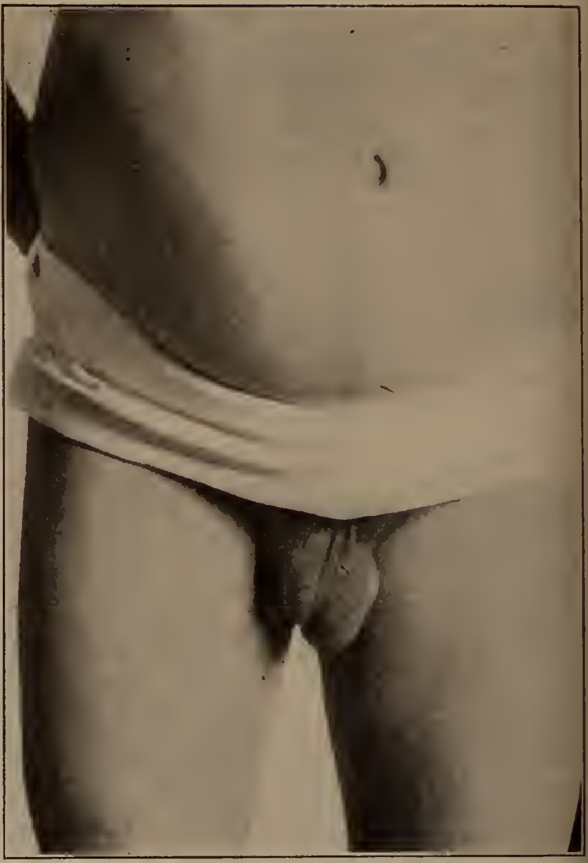


Fig. 2.—After ten minute bath in Sprudel. Bad Nauheim.

promotes reaction, despite capillary dilatation. You will find an illustration of this in the *N. Y. Medical Journal* of the 13th inst.

It is plain that through the combined effect of all the elements furnished by the CO^2 baths, as described above, there is a mild resistance at the periphery, which impels the ventricle, already stimulated by absorbed CO^2 to drive the blood with more energy to all the outlying districts. This mild training of the heart appears to be productive of salutary conditions in the entire vascular system.

The action of the salines is potent and rests upon a scientific rationale. They are *not* absorbed, but as the Nauheim doctors correctly claim, an imperceptible layer remains deposited on the skin even after drying. Salt being hygroscopic the skin remains somewhat moist. Added to this there is an irritating action of the salines upon the skin, producing a moderate hyperæmia; both furnish an enduring physiological rest to the failing heart.

2. But a more potent influence of the salines is evidenced by the discovery of H. Winternitz, in von Mering's Erlangen Clinic, that *the addition of chloride of sodium to the CO^2 bath promotes the penetration of the gas through the skin and its entrance into the blood.* The importance of this fact has been overlooked. Believing that an essential effect of the CO^2 bath arises from the absorption of CO^2 gas, which acts primarily upon the unstriated muscular coats of the cutaneous arteries and arterioles, increasing peripheral resistance and thus enhancing ventricular energy, in a mild but positive form, I lay great stress upon its presence in proper quantity, as found in the Nauheim water.

3. It is my gratifying privilege today, to present the most important, and as far as I am aware, hitherto unknown value of salines in the Nauheim water. Not satisfied with the valuable empirical findings of our Nauheim colleagues, I sought a scientific explanation for them. Under my direction the talented chemist of the Reservation Commission, Mr. Herbert Ant, made certain experiments. Under date of December 29, 1915, Mr. Ant reported, "I have completed the experiments on the artificial baths requested by you," and he concluded (referring to the best artificial CO^2 preparation), "This gives only 16.3 per cent free gas that is actually available for the beneficial effect of the bath. Of this 16.3 per cent only from 5 to 7 per

cent is supersaturation." In compliance with directions for another experiment, which I had sent to Mr. Ant, he reported on April 18, 1916, "You will note from some of my previous results on artificial baths that the addition of the salts seems to retain the gas better, and therefore improves the supersaturation." In fact the difference is marvelous, being 5 to 7 per cent from the best artificial preparation, without the salines and 20 to 25 per cent with the same preparation, when the proper quantity of salines is added. Mr. Ant has also, in accordance with my instructions, determined that when the salines are added there is a loss of only 1 to 2 per cent of gas during a ten-minute bath, and 2 to 5 per cent during fifteen minutes.

These reliable data must set at rest all further disputes over the value of the salines in the Nauheim waters, for they show that absorption of CO^2 is furthered by them and escape of CO^2 is prevented by them.

Since Hathorn 1 loses 8 per cent during a brief bath, the value of saline addition becomes evident. It was proved when last October I advised the Chairman of the Reservation Commission, to direct the Manager of the Kayoderosseros Bath, as a temporary measure, to add 6 lb. sodium chloride and 10 oz. calcium chloride to each bath, the attendants reported a greatly increased hyperæmia.

In order, however, to have the closest approximation to the Nauheim water in Saratoga, it is necessary to add to the water of the Saratoga Bath, supplied from the Hathorn Spring No. 1, which contains, besides many of the minor mineral ingredients, about only 21 oz. of chloride of sodium and no chloride of calcium, in each 60 gallons definite quantities of salines which are the average saline content of Sprudel Nos. 7, 12 and 15 in Nauheim as calculated by Mr. Ant.

It would not be difficult to have on hand packages weighed correctly and labelled for filling prescriptions. The other mineral ingredients are so minute in quantities and practically the same in both waters (Saratoga and Nauheim) that it would not be worth while to calculate them. It would be easy to dissolve the required salines in the smallest quantity of CO^2 water possible in the tub and then allow the Hathorn water to flow in in sufficient quantity to cover the patient's trunk and limbs. The tubs (Saratoga Bath) could be measured to ascertain the level of 60 gallons. (In my own tub, which is 5½ feet long and 2⅓ feet wide, 60 gallons, reaching within one inch of the overflow opening, covered a person weighing 164 pounds and 5 feet 10 inches in height.) By this simple process the strength of all the baths of the series may be definitely prescribed as is now done in Nauheim and confusion avoided.

In Saratoga Springs physicians would do well to use the Saratoga bathhouse chiefly for Nauheim baths in order to avoid confusion, and to use the Lincoln and High Rock Springs for other cases. My reasons are:

1. The bath on Phila Street, being situated in the town near the lodgings of the patients, would diminish the exertion to reach their rooms, while the Lincoln bathhouse, especially, is a short distance from town, an advantage for cases of neurasthenia and other functional diseases, that require open air exercise after the bath, viz., when the system has been thoroughly aroused.

2. The attendants of the different bathhouses would in this manner become skillful in their respective lines.

3. Another important advantage of this specialization would be that by treating cardiac cases in the bathhouse on Phila Street the physicians would have more easy access to the bathhouse, enabling them to supervise the treatment occasionally as the Nauheim colleagues do. In the event of overcrowding, the High Rock or Lincoln bath could be used for the purpose by having the necessary saline packages on hand.

Therapeutic Application.

Most of the Nauheim physicians, as Dr. Honan informed the Saratoga colleagues, begin a series of baths with the thermal bath, containing the salines, with a minimum of CO^2, left after exposure to the air.

Recognizing the rationale mentioned it is not difficult to devise a scheme of treatment by which the heart may be gently trained. I shall confine myself to a few illustrations.

In cases of *positive insufficiency* of the circulation, in which there is no great dyspnœa in the recumbent posture and only slight œdema, rest is the most important element of treatment, especially after arrival from a journey.

In Saratoga Springs such cases may receive with benefit the Hathorn No. 1 in the Saratoga Bathhouse, diluted with 50 per cent plain water, in which the salines have been first dissolved and poured into the tub, the bath being of about 93 F., duration six to eight minutes and repeated every other day. This should be followed by a rest of one or two hours in bed. Patient should return to his room in a wheelchair or other easily-running vehicle. After three or more of these baths, the duration may be increased to ten minutes, and the dilution diminished from time to time. If dyspnœa and other manifestations are relieved, the temperature of each bath may be reduced gradually as far as 91 F. and the full saline and CO^2 given. The number and frequency of the baths should be arranged entirely in accordance with the effect of each partial series, ascertained by a report of the nurse or better still by the physician himself. *The prevailing mode of ordering a series of eighteen baths is unscientific and unjust to the patient.* An enduring sense of fatigue or loss of sleep are warning signals that the bath is too long, too cold or too warm.

If the *cardiac insufficiency* be more recent, or compensation appears to be initiated, the full strength of the saline and CO^2 bath may be administered for three baths at 93 F. and gradually reduced in temperature and the duration increased up to twelve minutes, omitting the third day.

In *uncomplicated mitral insufficiency,* if there is no cardiac muscular degeneration the temperature of the bath may be reduced every other day until 86 F. or lesser is reached, according to the effect upon the pulse and general manifestations.

In cases of aortic or mitral stenosis, or if there is much fibrillation, the temperature should never go below 90 F.

If there be no disturbance of compensation, namely, if palpitation or slight dyspnœa ensues only on decided or prolonged exertion, or during ascending stairs, one may proceed to the strongest baths, at a temperature of 90 F. and duration of ten minutes, but not exceeding fifteen minutes. Only well-ascertained tolerance after each of these baths would warrant proceeding to lower temperatures, and this with great caution, but with a shorter duration, not exceeding ten minutes.

Attention should be paid always to the general manifestations following these baths. A sense of prolonged fatigue and loss of sleep indicate that the bath is probably too intense.

Patient must be seen before each new bath prescription.

In *so-called fatty heart* and so-called weak heart, manifestating themselves by a feeble compressible pulse of 80 or over, or increased considerably by ordinary exertion, one may readily proceed from the mildest to the strongest CO^2 bath, with intermissions, raising the duration up to fifteen minutes, and lowering the temperature to 85 F. by degrees.

In *arteriosclerosis,* the therapeutic indications are conditioned upon the presence or absence of increased blood pressure and high pulse tension. In the latter cases, the bath temperature and duration may be gradually increased to a point at which results appear to be favorable, always being ready to recede on the appearance of unfavorable manifestations. When there is high blood pressure, however, great caution is necessary and it is well not to allow the temperature to go below 95 F. A full bath of Hathorn No. 1, with saline addition at 93 to 95 F. is ideal in such cases, if the duration be gradually and cautiously increased as far as fifteen minutes.

In *true angina pectoris,* when the nitrite of amyl does not relieve the paroxysm, Groedel advises to refrain carefully from the carbonic acid bath. He gives the same warning for patients with arteriosclerosis, who have had an apoplectic attack, even of the mildest type. Our own Babcock says, "Nauheim baths must be ordered with extreme care. I now recall only one patient who appeared not to be benefited by these baths."

Angina pectoris of the so-called nervous or functional type, requires gradual neuro-vascular training, beginning with baths of five minutes at 93 F. and diminishing the latter in each bath, as far as 85 F. without salines.

Groedel and Goldscheider regard the carbonic acid baths as the most excellent means of exercising the vasomotors and of raising the tone of the cardio-muscular nervous system. This is entirely in accord with my own observation; these baths, without salines, having brought me very satisfactory results in cases of nervous or false angina, which must be diagnosed cautiously.

In Basedow's disease and in neurasthenics suffering from nervous disturbances of the heart, manifested by easily produced palpitation, without exertion, cases should be carefully differentiated. The depressed type may be treated energetically, with daily brief CO^2 baths, at the Lincoln Spring, which has the highest CO^2 content, beginning at 90 F.

In the *erethetic type,* the carbonic acid baths are contraindicated.

Purely anæmic patients should be treated with a full gas content (Lincoln Spring), *without salines,* increasing duration and decreasing temperature, beginning with 90 F. and decreasing until the lowest temperature, which produces an agreeable reaction is reached. On account of the value of open air exercise after the bath in non-cardiac cases, I recommend the Lincoln and Empire Springs, for the neurotic cases.

The Nauheim physicians have ascertained, by long experience, that patients arriving there should be kept in absolute rest, before the baths are begun, until a fairly normal condition of the pulse and respiration is established. They should also have physical and mental rest before each bath. The most favorable time for the bath is in the morning, about an hour after a light breakfast. Patients should endeavor to be quiet in the bath and avoid inhalation of carbonic acid gas, which is not, as I have shown, to be as apt to occur in the natural as in the artificial bath, in which it may be fanned off before entering. He should be dried gently; without friction, with warm linen sheets or towels and he should rest in bed in a well-ventilated room, one or two hours after each bath. A fairly strong patient, whose pulse is not easily excited, may walk slowly to his lodgings and there take a rest, but in the majority of cases, I regard it as advisable for the patient to ride in a chair to the hotel and in severe cases, he should not leave the bathhouse without resting at least an hour. The period of rest is the time for the physician to see him personally, if possible, in order to note the effect of the bath.

A reliable guide to the beneficial or other effect of the bath is the condition of the pulse, which should be reduced in frequency and somewhat increased in tension, in uncompensated or imperfectly compensated patients. Groedel, Sr., holds that cases that do not respond to digitalis are, as a rule, not benefited by baths. I am disposed to believe that this is too broad a statement, since we have in the bath (plain water or water containing CO^2 of varying temperatures and durations) means for adapting them to conditions that will not respond to digitalis.

An important auxiliary in the Nauheim method is the mechanical treatment by passive and active movements.

Mechanical Treatment.

While rest is probably one of the most important elements in the management of cardiac ailments, exercise is of great service. The latter must be adapted, just like the baths, to the responsive capacity of the heart, with due regard to physiological principles, viz.: that exercise of the voluntary muscles produce an emptying of the veins, which in advanced cardiac cases always are too well filled. That the respiration may also be affected by certain mild forms of exercise, I have had abundant opportunity to prove. I have in mind a medical society meeting, in which an eminent internist stated as a result of a recent visit to Nauheim, that the resisting movements are a negligible fad. I called upon him to permit me to give him some resisting exercises of the arms, and on his declining gave them to another colleague, who in reply to the question if he felt any effect, said that he felt somewhat fatigued.

Active exertion, like tennis or bicycling, etc., or long walks, are absolutely forbidden, but the energy of the heart may be trained by mild methods of exercising; passive and resisting, followed by the Oertl system of walking, all of which must be applied with due regard to the reserve power of the heart and the vascular system, always bearing in mind that the latter is vicarious of the former. The physical condition of the patient is here of great moment. He must be absolutely calm during the exercises. In the passive method the attendant grasps an extremity, with the right hand. Holding the adjoining portion of the limb, with the left hand, he flexes and extends it slowly several times, with a view to press the venous blood out of the muscles, increasing the arterial supply of the latter. This is repeated with several extremities, after each of which the patient is advised to rest. In the resisting movements I still adhere to Schott's Wiederstand Gymnastik, consisting of slow movements executed by patient, and resisted by operator, short intervals allowed between each for rest, patient sitting in chair, rises for each movement. They may be alternated with the baths or follow the completed series.

Exertion should be small and cause no increased respiration, flushing or pallor. Patient should be loosely clothed and told to breathe quietly. Resistance of such kind that patient feels himself master. Operator must not grasp or constrict limb, but oppose by hand held flatly.

1. Each movement is to be performed slowly and evenly, that is, at a uniform rate.

2. No movement is to be repeated twice in succession in the same limb or group of muscles.

3. Each single or combined movement is to be followed by an interval of rest.

4. The movements are not allowed to accelerate the patient's breathing, and the operator must watch the face for the slightest indication of (a) dilatation of the alæ nasi; (b) drawing of the corners of the mouth; (c) duskiness or pallor of the cheeks and lips; (d) yawning; (e) sweating; and (f) palpitation.

5. The appearance of any of the above signs should be the signal for immediately interrupting the movements in process of execution, and for either supporting the limb, which is being moved; or allowing it to subside into a state of rest.

6. The patient must be directed to breath regularly and uninterruptedly, and should he find any difficulty in doing so, or for some reason show a tendency to hold his breath, he must be instructed to continue counting in a whisper during the progress of each movement.

7. No limb or portion of the body of the patient is to be so constricted as to check the flow of blood.

Exercises.

1. Arms extended in front of body on a level with the shoulder, hands meeting; arms carried out until in line and brought back to original position.

2. Arms hanging at sides, palms forward, arms flexed at elbow until tips of fingers touch shoulder, back to original position; one arm only moved at a time.

3. Arms down, palms forward, arms carried outwards and upwards until thumbs meet overhead; back to original position.

4. Hands in front of abdomen, fingers flexed so that second phalanges touch those of opposite hand; arms raised until hands rest on top of head: back to original position.

5. Arms down, palms against thighs, arms raised in parallel planes as high as possible: back to original position.

6. Trunk flexed on hips; return to original position.

7. Trunk rotated to left, to right; return to original position.

8. Trunk flexed laterally.

9. As No. 1, but fists clenched.

10. As No. 2, but fists clenched.

11. Arms down, palms against thighs, each in turn raised forwards and upwards until arm is alongside of ear, then turned outward; arm descends backwards.

12. Arms down, palms to thighs, both together moved backwards in parallel planes as far as possible without bending the trunk forwards.

13. Thighs in front flexed on trunk, opposite hand resting on chair.

14. Lower extremities in turn extended fully, and bent on trunk forwards and backwards to extreme limits of movements, opposite hand resting on chair.

15. Legs in turn flexed on thighs, both hands on chair.

16. Feet together, lower extremities in turn abducted as far as possible and brought back to original position, opposite hand on chair.

17. The arms extended horizontally outwards are rotated from the shoulder joint to the extreme limits forwards and backwards.

18. The hands in turn are extended and flexed on the forearm to extreme limits and brought back in line with arm.

19. The feet in turn are flexed and extended to extreme limits and then brought back to their natural position.

These exercises are given on the Zander apparatus in Nauheim and other resorts.

The principal guide to a prescription of the Nauheim method, whether natural or artificial is *adaptation of the bath in duration, temperature and gas and mineral contents, to each case,* and a careful watching of the response of the heart.

Artificial Nauheim baths for use at home demand precision also. This may easily be obtained by disregarding the directions in the package, and following this method. For example, if in the first series of baths a weak CO^2 water and full strength saline content is indicated, fill the tub with water, dissolve 13½ lbs. sodium chloride and 1 lb. calcium chloride in it, then add quarter or half the quantity of the alkali and acid in the package. If a full strength of Nauheim water is indicated, dissolve the salines in the water then add all the packages for producing CO^2 etc. The Nauheim bath is rarely given higher than 95 F. nor lower than 86 F.; with good reaction it may reach 80 F.

SUMMARY.

The object of all treatments is to mildly raise the responsive capacity of the heart muscle by withdrawing obstacles to its free action, at the periphery, and enhancing the ventricular energy by slow degrees; in other words, to train the heart muscles as we train the muscles of the arm, with dumb-bells, by gradual increase of labor. This is a coarse analogy; no harm can be done to the healthy voluntary muscles by over-exercise, whereas the cardiac muscle acts involuntarily and is related intimately to the complicated machinery of the entire body, to which it furnishes pabulum, for the organic activities. Moreover, we have to deal with a pathologic condition of a delicate organ, demanding cautious adjustment.

In Nauheim they find a series of eighteen baths and not exceeding twenty-four of average usefulness. From this brief data it may be inferred that the routine prescription of a series of eighteen or less number of baths, which many American physicians are in the habit of prescribing, is not to be commended. Positive individualization, which involves examination after every two or three baths, is necessary in every case, not alone on account of occasional idiosyncrasies that may bring about serious or fatal results, but owing to the uncertainties in the responsive capacity of patients suffering from cardiac diseases, no two of whom are alike. One of my patients complained that a doctor in Nauheim, to whom I had sent him, was objectionable, because he seemed to pursue him, when he did not appear at his office, as directed. The patient regarded his motive as mercenary, but the fact was that this conscientious physician was intent upon protecting him against possible deleterious consequences from negligence of his prescriptions. It is safest to err on the right side and see the patient frequently.

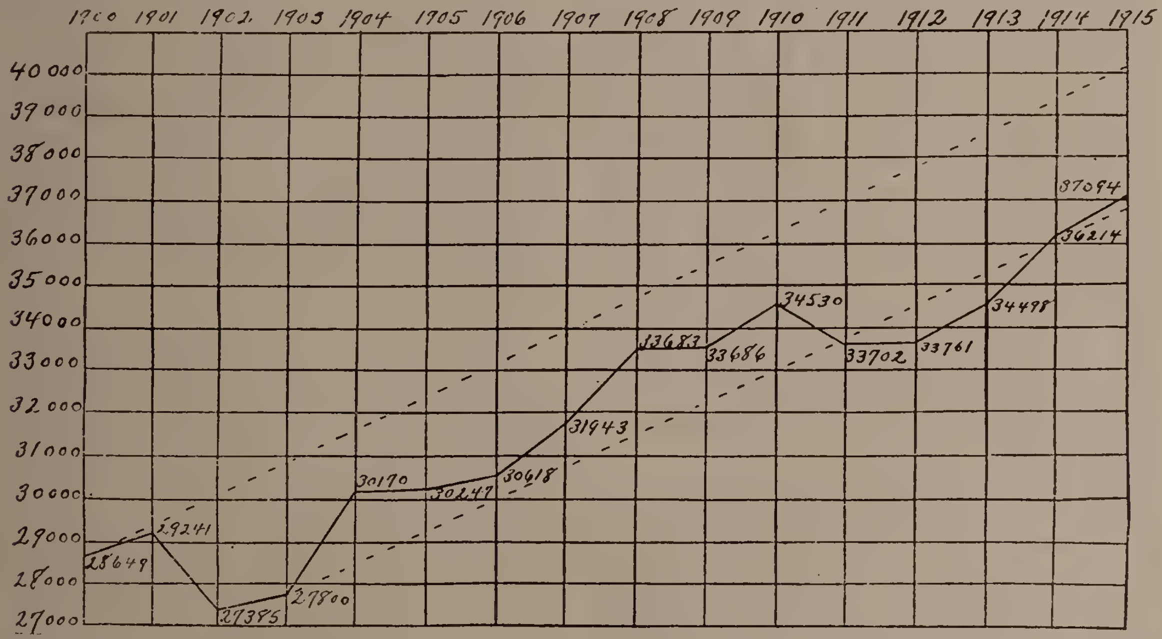
In conclusion I would urge that, as has been shown, the plain CO^2 bath, whether natural or artificial is not "just as good" in cardiac disease. It is a poor substitute for the Nauheim bath in which the salines insure Nauheim results.

A SCHEME OF STATE CONTROL FOR DEPENDENT INFANTS.*

By HENRY DWIGHT CHAPIN, M.D.,
NEW YORK CITY.

A VERY large number of dependent children are annually cared for in the State of New York by municipalities and various agencies under the official supervision of the State Board of Charities. The methods of operation and results of these different agencies vary according to the ages of the children. It seems wise in this connection to make a distinction between the infant and very young child and older children.

Let us first glance at the relative numbers that are cared for at different ages. The magnitude and growth of this work is shown by the following chart prepared by the State Board, which exhibits graphically the relative average rate of increase in the population of the state as compared with the fluctuations in the population of the institutions for children. The heavy line represents the fluctuations in the population of the institutions for children as reported for September 30th of each of the years represented; and the dotted lines represent the relative average rate of increase in the population of the state.



The total number of children admitted to institutions reporting to the Board was 18,801 during the year ending September 30, 1915. The ages of these children when admitted were as follows:

Less than one year of age	3,677
Between one and two years	1,021
Between two and five years	3,104
Over five years	10,999
	18,801

The ages of the children remaining in the care of institutions on September 30, 1915, were as follows:

Less than one year of age	1,486
Between one and two years	1,227
Between two and five years	4,807
Over five years	29,574
	37,094

A glance at these two tables will show a much smaller number of infants at the end of the year than were admitted during the course of the year. While some of these infants were discharged, or transferred elsewhere, a very large number died. The following two tables will show the number of deaths of infants and little children in institutions during the past two years. These figures do not include hospitals for the treatment of acutely sick infants.

1914

CASES DISCHARGED FROM INFANT ASYLUMS
(YEAR ENDING, SEPTEMBER 30, 1914).

Length of time in Institution.	Less than one year.					From 1 to 2 years
Age when discharged	Under 3 months	3 to 6 months	6 to 12 months	1 to 2 years	2 to 5 years	1 to 2 years
Total	1306	540	582	504	614	318
Died	956	303	261	96	22	74

1915

CASES DISCHARGED FROM INFANT ASYLUMS
(YEAR ENDING SEPTEMBER 30, 1915)

Length of time in Institution.	Less than one year.					From 1 to 2 years.
Age when discharged.	Under 3 months	3 to 6 months	6 to 12 months	1 to 2 years	2 to 5 years	1 to 2 years
Total . . .	1035	621	746	666	671	313
Died	674	389	350	122	22	74

As the whole number of infants in the institutions at one time is not included in these tables the mortality rate cannot be given, but a careful study of this question by a committee of the American Association for Study and Prevention of Infant Mortality has given information on this point as well. An examination of the statistics of eleven institutions operating in New York State showed that from 1909 to 1913, inclusive, 28,210 children under two years of age were cared for in these institutions, and that the death rate for babies under two years for this period, based upon the total number of children cared for, varied in the different institutions from 183 to 576 per thousand, with an average mortality rate for the eleven institutions of 422.5 for the five years. During the years 1909 to 1912 inclusive, the death rate for children under two, based on the estimated population for the state at that age, was 87.4, practically one-fifth of that in institutions. These figures emphasize the fact well known to those working in this field that institutional mortality among infants, especially in the first months, is very heavy.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 18, 1916.

We may here briefly inquire why the institution is not a favorable place to permanently house babies. Each age and period of life has its own special susceptibilities and reactions to various environments. The infant, in the first place, needs individual watching and care and always suffers when this is lacking. It seems to crave the usual environment of family life as this is the unit best fitted for its healthy development. In other words it needs a home and mother. The farther we get away from these normal and natural conditions, the more the baby suffers. A poor mother and a poor home are better for the baby than an institution. But even in the best of institutions, there are rarely enough good nurses for individual care during the day, and practically never at night. A baby can lose from a restless, untended night, the good that may have taken days of care to secure. The babies quickly show the lack of this individual nursing, generally by stationary or losing weight.

They rarely get sufficient fresh air, and oxygen is as necessary to their well-being as protein or fat. This may explain why improved methods of feeding have not had as favorable results inside institutions as outside of them. Lying in cots for long stretches of time, they miss the handling and fondling that even the poorest mother gives, and the muscular exercise that goes with it. When babies are removed from the natural conditions that usually go with even the poorest home, they droop in the presence of an artificial environment. The baby is the most susceptible member of the family to all external conditions.

There are other dangers in collecting and treating infants *en masse*. Reference may first be made to the spread of specific infections, such as pertussis, diphtheria and the exanthemata, to which little children are usually susceptible. Young protoplasm is receptive to germs of all kinds, which are passed from one to another unless the greatest care is exercised in preventing their transmission. When the general vitality is depressed, resistance is likewise lowered. Institution infants seem to lose their immunizing power against bacteria after a certain length of time. Probably the greatest and most constant danger, however, comes from the ordinary ward infections. It is almost impossible to prevent cross infections, especially from ordinary colds and influenzas, when many cases are collected in one ward. It is a constant experience in institutional management to have cases of pneumonia develop, as well as affections of the mucous membranes of the nose, ears, throat, bronchial tubes, gastro-intestinal tract and vagina. Unfortunately, if vaginitis occurs, it is nearly always specific and it is exceedingly difficult to prevent its general spread or even to treat the disease successfully in the individual.

Unfavorable conditions that cause a high death rate, and favor the spread of infections, are also usually reflected in a poor vitality in those who survive. This is one of the most serious aspects of this question. The first few years of life are, biologically considered, the most important ones we live. The rapidly growing organism has at this time stamped on it the possibilities of future vigorous life or of early degeneration or decay. Defective conditions at this period cannot be compensated for, as they sometimes can be in later life.

What then shall be done with the many foundlings and abandoned infants that drift from one institution to another in our large cities? It is a most difficult problem involving helpless, unmarried mothers, worthless, or hopelessly poor and ignorant parents, and social conditions that are hard to remedy. The institution has, at best, very poorly succeeded and usually failed in the solution of this problem, so that some other plan should be tried. The most promising endeavor consists in a proper amplification and systematizing of boarding out, accompanied by a careful follow-up system constantly at work. Relief must be aimed along the lines of family life with individual supervision instead of the collective life with institutional methods. Boarded out babies, however, should be kept under constant oversight by some competent authority. There is nothing in common between a well-organized system of boarding out and the old-fashioned baby farming which was subject to many abuses.

It is proposed to abolish the large city asylums and institutions for the care of homeless babies, and, instead board them out in the surrounding country. A method of operating this plan would first consist of having a few small collecting stations in the city. These stations will merely act as receiving homes to study the infant's physical condition and find the proper substitute food, after which it will be promptly boarded out in the country or even in the city, but under the constant oversight of a doctor and nurse who are never to lose sight of the case. This plan requires the work to be done in certain definite localities that will serve as units—each unit having its own staff. These babies must never be allowed to get away from constant and careful supervision if good results are to be obtained. Systematic, careful study of the field of operation is required if such a work is to succeed. Desultory, haphazard methods will not avail? The same care, routine and system that are usually brought to bear in institutional work must be applied here. Its advantage lies in working largely through direct human agencies instead of depending overmuch upon a plant or a machine. A unit should consist of a definite locality, whose limits are not too widespread, which will thus allow of a complete understanding of the community by the visiting nurse. A survey should first be made to find out the general healthfulness and hygienic condition of the locality. Next, a census of homes, desirable and available for boarding babies may be made, with data as to the members and apparent intelligence of the family and the hygienic condition of the household. The health and tone of the mother's own children will form a very good index as to her suitability for undertaking such a work.

The large infant asylums now board out quite extensively, but do not exercise sufficient oversight of their charges. The following plan of boarding out was inaugurated by the writer in 1902 and has been in successful operation ever since. As no institution was involved, a society was formed to oversee and carry out the work. The Speedwell Society emphasizes the following points: First, boarding out in a certain district of the country noted for its healthful conditions. Second, constant attention to diet and hygiene on the part of a physician and nurse who are thoroughly familiar with this class of cases and competent to deal with them. Third, the infants are kept as long as necessary, until feeding is regulated and digestion and assimilation are improved sufficiently to result in an increase of weight. Work is kept up during the whole year and not limited to certain seasons. Fourth, the training in a given neighborhood of a number of foster mothers, who, by constantly taking these infants into their homes, become fairly expert in handling them under conditions totally unlike those offered by the best institutions, and far superior to them.

The infants are kept until they are essentially improved—the average stay being about four months—when they are returned to their homes if such exist and are suitable for the infant. There is no reason why this principle should not be indefinitely extended. For the homeless or parentless infant, it would take the place of the institution. It is safer and more natural to house the child permanently in a home, however humble, than in the best equipped institution. In the long run the baby will do better in the home, but boarding out, according to this plan, should always be done in units which will allow intensive working in many small fields. Each village around a city could have its unit, with doctor and nurse working under the direction of a local committee. Money collected for such a work would thus be largely expended in direct human service, rather than in keeping up bricks and mortar. The large sums of money now spent by the state in various communities to support children in institutions could gradually be deflected into real homes. Immense amounts are annually given by various municipalities for the institutional care of children. Thus the City of New York in the decade from 1904 to 1913 contributed $4,481,251.28 to five institutions devoted to the care of infants. Instead of paying money to institutions, it would be better for the state to support a series of carefully regulated units for the intensive care of dependent infants boarded out in homes. Various centers for this work could be formed along the lines of densest population. These lines always follow those of transportation, and in this state the Central Railroad traverses the most populous sections of the community. Following this idea, the following centers suggest themselves for tentative trial: New York, Albany, Syracuse, Rochester, Buffalo. For the upper part of the state, Watertown might serve, while Binghamton could act as a center for the lower tier of counties. Each of these localities might serve as a unit, with a doctor and nurse on a salary, and homeless or abandoned infants from the surrounding area could be placed in homes under their oversight. The whole work should be under the control and inspection of a central body, such as the State Board of Charities, in co-operation with the State Department of Health. The difference would be not only in lowering mortality but the money would go to trained human instruments such as doctors and nurses, rather than be expended in overhead charges for operating large buildings.

The homes in which the children are placed will be helped financially by the board paid, and morally by the good advice and watching of the trained overseers. It will thus help the problem of poverty in every community and aid in keeping families together in line with the widowed mother's pensions. The educational value should also be considered, as the constant oversight by a doctor and nurse will help instruct each foster mother in the care of her own children. It would be possible to raise the whole standard of living among many poor families in this way and I believe this has already been accomplished in the section of Morristown, N. J., in which the Speedwell work has been going on for the past fourteen years. We have been astonished at the labor and solicitude often given by our foster mothers in the care of sickly, atrophic infants and the marvels occasionally wrought thereby. A woman who bears a baby is a creator: a woman who takes a feeble, ailing baby and restores it to health and strength is a re-creator. In this work, even poor mothers often succeed where the most exemplary nurses fail. There is something in the mother instinct that makes for healing; love has a distinct therapeutic value to the little child.

The best solution is thus to place the well and normal child in a private home constantly supervised by the authority of the state; the defective, and sometimes the acutely sick infant, may best be treated in the institution. We would not imply that good intentions and kindly services are not found in institutions, in spite of the lack of individual care, but the time has gone by when good motives can be accepted as a lasting excuse for bad methods.

Thus far we have only studied this problem from the standpoint of efficiency; there still remains the question of economy to consider. This is reached by comparing the daily per capita cost to the individual in an institution with the cost for the same type of case as handled by boarding out according to the Speedwell method. The daily per capita cost is obtained by dividing the total number of days service into the total cost of operation. This is the standard by which the Hospital Saturday and Sunday Association of New York City estimates the amount of work done by institutions, with the cost, in apportioning its funds. The following is taken from their statement of the daily per capita cost of four hospitals in New York City dealing principally with infants and little children: $1.98, $1.90, $1.81, $1.54. Three of the city institutions for infants, in which hospital care is not an important feature, do not receive aid from the Association and hence do not report according to its standards. In an accounting to the Department of Finance of the city they report a weekly per capita cost of $4.75, $3.48, $3.34. No explanation is given as to how this amount is reached and what is included or excluded in arriving at these figures.

In estimating the real and actual cost of caring for children in institutions, several items should be considered to which attention is usually not directed. Thus no account is taken of the original cost of the plant. As this means locking up a large sum, several hundred thousand dollars—and in one case well over a million dollars, the interest of which might be expended in more fruitful methods of operation, this lost interest should be charged against the expense of the work. These buildings are also not taxed, which means that the community at large must make up this deficit by additional taxation, and thus indirectly contribute an added cost. It is thus seen that the institutional care of infants is really very costly when analyzed from all sides. Against this, the cost of the Speedwell method of carefully regulated boarding out amounts to $1.15 per capita per day, which includes absolutely everything. Traveling expenses of nurse and child to and from the country, extra clothing, special milk, the price of board and the salary of a doctor and two nurses, with occasional unforeseen additional expenses, are all included in this item.

It is seen that this plan of management is economically sound as well as practically efficient. While efficiency should always come first in charitable work, economy of administration is a feature that is too often overlooked.

The time is ripe for new and concerted efforts along the line of conserving the life and vitality of motherless and abandoned infants. It is believed that the plan here proposed offers the best solution of a difficult problem if intelligently and perseveringly tried. The life of the infant is, economically, the most valuable asset of the state, as it should have the longest duration in years and the highest possibility of usefulness. The preservation and conservation of vigorous infant life should thus be one of the first concerns of the state.

CANCER AS A NON-SURGICAL DISEASE.*

By L. DUNCAN BULKLEY, A.M., M.D.,
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CANCER is not a surgical disease, although of late years cases of this nature have been almost always relegated to the surgeon. It is true that the *local results* of the cancerous process can be removed by surgical measures, and that the wound may heal primarily and that in some proportion of instances the tissues may remain sound. But the experience of all has shown that the mere removal of the cancerous tumor and adjoining tissues surgically does not insure that the disease will not return in or near the scar, or elsewhere. It is now recognized and acknowledged that somewhere about 90 per cent of those once affected with cancer die from that malady. Surgery as a cure for cancer has been tried in the balance and found wanting, since under its supervision and treatment the death rate has increased to a lamentable degree of late years.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

According to the United States Mortality Reports, the deaths from cancer under surgical control, have *increased* steadily and alarmingly since 1900, when they were 63 per 100,000 of the population, to 79.4 per 100,000 in 1914, or over 25 per cent. During the same period the mortality from tuberculosis, under intelligent medical supervision, has *diminished* from 201.9 to 146.8 per 100,000, or over 27 per cent, making an actual difference of over 50 per cent in their relative mortality since 1900. At this rate the deaths from cancer will outstrip those of tuberculosis in fourteen years more. Is it not time for us to seriously consider whether the present attitude toward cancer is correct or not?

It is understood that the present inquiry relates to cancer as a disease, affecting many different organs; epithelioma of the skin is left practically out of consideration, as it is a relatively mild affair, when properly treated; it caused a comparatively insignificant proportion of the deaths from cancer, 2.7 per 100,000 population, which rate has increased only in a trifling degree since 1900. And yet many of the arguments presented in the recent surgical propaganda as to the control of cancer relate to the early surgical treatment of this epithelial disease of the skin!

No one has ever seen absolutely the first beginning of an internal cancer, and we have no knowledge as to exactly how the process starts; although microscopic research on cutaneous cancer has revealed much concerning the early changes occurring in tissue cells in this disease.

But the laboratory has not told us wherein lies the malignity of the true disease which ultimately destroys so many lives, why cells which were once normal take such a morbid, uncontrollable and even rampant action that they can invade and destroy adjoining and distant tissues. We shall see later that the hypothesis of a purely local origin and nature of cancer is quite untenable in the light of modern investigation and thought.

The laboratory, however, both in a negative and positive manner, has done much to clear up our field of vision, and to open the way for a correct understanding of the cancerous process. Time does not admit of even a brief survey of the enormous work which has been done on cancer by thousands of earnest and honest workers in laboratories, at a vast expenditure of time, money, and animal lives; but a concise statement of the status of certain questions regarding the etiology of the disease will assist us in properly appreciating the medical aspects of the subject. As just suggested, the points thus far acknowledged by those who have most deeply studied cancer are both negative and positive, and may be mentioned under these heads:

1. Clinically and experimentally cancer is shown to be *not* contagious or infectious; although under just the right conditions certain malignant new growths can be inoculated in some animals, but human cancer cannot be transplanted.

2. Although micro-organisms of many kinds often have been found and claimed as the cause of cancer, there has been no concurrence of opinion in regard to them, and it is now pretty conclusively agreed that cancer is *not* caused by a micro-organism or parasite.

3. Cancer is *not* wholly a result of traumatism, although local injury may have much to do with its development in some particular locality, even as in connection with late lesions of syphilis.

4. Cancer is *not* hereditary in any appreciable degree; although some tendency in that direction has been demonstrated in certain strains of mice.

5. Occupation has *not* any very great influence on the occurrence of cancer; although it is more frequent in some pursuits than in others.

6. Cancer is *not* altogether a disease of older years; although its occurrence is decidedly influenced by advancing age.

7. It does *not* especially belong to or affect any particular sex, race, or class of persons.

8. Cancer is *not* confined to any location or section of the earth, but has been observed in all countries and climates.

But while laboratory and other investigations have not demonstrated any single cause of cancer and have yielded only *negative* results, they have, by elimination, cleared the way for a study of its cause along other lines, which are bright with promise. They have also established certain facts which confirm the views which from time to time have been briefly expressed by many who were best acquainted with cancer; namely, that, because of its constant recurrence, and from the failure of surgery to check its rising mortality, it must be of a constitutional nature, intimately associated with dietary or nutritional elements, as I have elsewhere shown.*

The positive results of laboratory investigation are more encouraging:

1. We know now that the local mass, which we call cancer, represents but a deviation from the normal life and action of the ordinary cells of the body. These once normal cells for some as yet unexplained reason, take on an abnormal or morbid action, with a continued tendency to malignancy which invades and destroys contiguous tissue, and is associated with a progressive anæmia which destroys life.

2. Microscopic study has shown that there is a certain change in the polarity of cells about to be cancer-genetic, with an altered relation of the centrosome to the nucleus. These changes are again attributed to an alteration in the enzyme contained in the cell, which further depends on the nutrition of the cell as influenced by a faulty metabolism of food elements.

3. The exclusion of all other possible causes leads us naturally to look to a disordered metabolism as a cause of the disturbed action of the hitherto normal cells; and we find much to confirm this view both in laboratory studies on the bio-chemistry of cancer, and also in clinical and statistical observations.

4. The blood in advancing cancer has repeatedly been shown to exhibit many manifest changes, which indicate vital alteration in the action of the organs which form blood, and so control the nutrition of the body and its cells.

5. Laboratory and clinically evidence demonstrate that the secretions and excretions of the body, both in early and late stages of cancer, exhibit departures from normal which deserve consideration. Although none of these have as yet been established as pathognomonic of cancer, they indicate metabolic disturbances which influence the nutrition of the cellular elements, and so these secretory and excretory disturbances are of importance in connection with its causation.

6. As all healthy cells of the body, by their catabolism and anabolism contribute a hormone or something to the general circulation, so experimental evidence shows that the cells of a cancer mass itself, when fully developed, secrete a hormone or something which is poisonous to animals, and which probably hastens the lethal progress of the disease.

7. Repeated laboratory experiences have demonstrated, in a most remarkable manner, the absolute controlling effect of diet on the development of inoculated cancer in mice and rats, so that the process was inhibited almost entirely with certain vegetable feedings.

8. We thus see that as the laboratory has eliminated the local nature of cancer, it has also, in a measure, established the fact that there are medical aspects of the disease which further studies will show to be of the utmost importance. These all tend to demonstrate its constitutional origin, that is, its relation to deranged metabolism, which is now recognized as the basis of so many diseases.

But clinical and statistical studies come in with overwhelming force to confirm the correctness of this position.

1. We have already seen that with utter medical neglect cancer mortality has steadily and greatly increased in the United States, of late years, in spite of the prodigious advances in surgery during the same time. We have seen also that tuberculosis, as a result of careful medical attention, has decreased in mortality, by an even greater percentage. The same is reported by reliable observers all over the civilized world.

2. Any number of observers, in many lands, have recorded the almost entire absence of cancer among aborigines, living simple lives, largely vegetarian; they have also shown the definite increase in the disease, and in its mortality, in proportion to their adoption of the customs and diet of so-called modern civilization.

3. This increase of cancer seems to depend largely upon the altered conditions of life, particularly along the lines of self-indulgence in eating and drinking, and in indolence.

4. Statistics from many countries show that increase in the consumption of meat, coffee, and alcoholic beverages, appears to be coincident with a very great and proportionately greater augmentation of the mortality from cancer.

5. Clinical observation has time and again shown the effect of specific nerve strain and shock in the development of cancer; and there seems to be little question but that the enormous nerve strain of modern life is an element of importance in this direction, both through metabolic disturbance, and by direct action on living cells.

6. At present no clear demonstration is possible of the direct method by which errors of metabolism effect the changes in cells to which we give the name malignant, any more than we know how other alterations on the body are produced, such as arterial degeneration, bone changes, obesity, etc., which are recognized as due to metabolic derangement.

7. The results which have been observed in connection with the starvation of cancer, by ligature of vessels, illustrate the relation of the blood supply to growing cancer.

8. Finally, the repeated observation and report of the spontaneous disappearance of cancer, by careful and competent medical men, shows that conditions of the system may arise which are antagonistic to malignant growth, even when it has begun to take place; just as there are other conditions of the system which favor aberrant action of previously normal cells, resulting in cancer.

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* Bulkley—Cancer: Its Cause and Treatment, Hoeber, 1915.

The medical aspects of cancer thus appear in quite a different light from that in which they have been commonly viewed. We now begin to see some of the reasons why cancer is not primarily a surgical disease, and some of the lines along which observation and investigation should proceed, namely, biochemistry, secretory and excretory derangements, metabolic disturbances, diet, etc., etc. The subject is too new a one to afford a great amount of corroborative proof at present, other than the long personal experience of the writer and others, who have seen tumors disappear under means other than surgical, excluding also X-ray and radium. More clinical and laboratory studies of human beings are needed, and not only studies and experiments on animals, valuable as these have been in the advancement of medical science in connection with other diseases.

Time does not here permit of developing the lines of thought and practice along the dietary and medical treatment of cancer which can be successfully carried out in early cases, and which are of value in later stages, which have been presented elsewhere. The purpose of the present paper is to direct attention to the hitherto neglected medical aspects of cancer, and to present the evidences of the correctness of the thesis presented.

It is fully recognized that the almost universal opinion of the profession and the public favors only a surgical aspect and treatment of cancer, and it is difficult to make headway against such odds. It is also fully recognized that there is a certain danger in advocating a dietary and medical control of cancer, lest, if this is not properly and efficiently understood and carried out failure to control the disease may result, and thereby time may be lost in which a surgical operation might possibly be of some service. But after many years of observation and practice along these lines, together with much study in later years, I feel constrained to urge upon the profession views which are contrary to those which are accepted by so many, who perhaps have never had their attention seriously turned in this direction before.

There is not time to enter into details concerning the dietary and medical treatment of cancer, which have been presented elsewhere. I must only remind you that to carry out this line of treatment successfully requires infinite patience and the application of the greatest diligence in studying and understanding the exact condition of the patient, and meeting every possible departure from health, and rectifying every derangement of metabolism.

I cannot do better in closing than to remind you that the medical aspect of cancer is not an absolutely new proposition, although it has never before been presented in a definite and concrete manner. Literature is full of allusions to the subject, without any attempt to fully discuss it, and many of the strongest surgeons have expressed themselves convinced of the constitutional, and largely dietary, origin of the local lesion which we call cancer. This view finds abundant support in the writings of Lambe, Abernethy, Willard Parker, Sir Ashley Cooper, Sir James Paget, Sir Arbuthnot Lane, and quite recently has been advanced by Dr. Wm. J. Mayo and many others. Is it not, therefore, high time that serious attention be directed away from the purely surgical treatment of a *symptom* or *result* of a great disease, and that careful inquiry should be made into the underlying causes which ultimately result in such a great relative mortality, approaching 90 per cent of all those affected, exceeding that of any other one disease?

THE RELATION OF THE STATE TO THE SARATOGA SPRINGS RESERVATION.*

By **CHARLES S. WHITMAN, A.M., LL.B.,**
Governor of the State of New York.

I CONGRATULATE you to-night on the splendid appearance of the representatives of the great profession of medicine in the State, and to assure you that the citizens of New York are very deeply and profoundly interested in the work which your Association is carrying on.

The general public may not know of this or similar gatherings, or to any large extent many of the men who are at work to make this conference or similar conferences a success, but our people are keenly alive to the advances and the progress in the healing art, which have marked the life of your profession in the Nation and in the State.

The State Department of Health makes this report of the results of the Life-Saving Campaign for the year 1915.

In New York State, outside New York City, in 1915, the following reduction in deaths and death rates was obtained:

About 4,000 lives were saved as compared with the average death rates occurring in the three year period preceding 1913.

The general death rate was the lowest in the history of the State.

The infant death rate was the lowest in the history of the State.

The death rate from tuberculosis was the lowest in the history of the State.

The death rate from typhoid fever was the lowest in the history of the State.

The death rate from diphtheria was the lowest in the history of the State.

The death rate from measles was the lowest in the history of the State.

The death rate from scarlet fever was the lowest in the history of the State.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 16, 1916.

The death rate from whooping cough was the lowest in the history of the State.

While Dr. Biggs and the members of his Department are to be felicitated on the record, which I have read, of course, we all know that much of it is due to the devoted, conscientious and skillful work of the doctors all over our State.

However little intimate knowledge the Executive may have of the work of your learned profession, the public health is so vital to the welfare of the State that every conscientious lawmaker and Governor must feel it his duty to do everything within his power to lift the administration of health and hospital departments to the highest level attainable under our form of government.

All that contributes to the health of our people, as well as to their material, moral and mental growth and progress, are matters which vitally concern or should concern those charged with the tremendous responsibility of government.

I was very pleased to learn that your Association had chosen Saratoga for your annual meeting, and pleased as well when informed of the subject upon which I was expected to speak—"The relation of the State to the Saratoga Springs Reservation."

There is a great work to be done in connection with these Springs, and whether the State shall realize its tremendous opportunities to the utmost rests largely, of course, upon the medical profession itself. Whether development shall be slow or rapid depends in no small degree upon the attitude that the members of this Association and the doctors throughout our State decide to assume toward Saratoga.

The value of mineral springs, such as are here found, cannot be denied. The development of the European spas has done much, no doubt, to advance the standing and popularity and have contributed in some instances, perhaps, to the world-wide fame of certain Continental physicians.

Americans by thousands have flocked to foreign spas to receive benefit and betterment from the use of waters whose medicinal properties are similar—in many cases I am informed identical—with those which may be found at home. Of course, I am relying on the testimony of trained experts when I say that no waters in the world contain more healing qualities than do those which bubble from the Springs of Saratoga. These mineral springs provide agencies which will combat and delay the approach of undermining diseases, securing life extension through the application of life conservation.

That these waters may be kept for the use of all of our people, that this possession of the State, as a whole, which nature has provided with such a lavish hand, may be saved for all time to come, the State has here invested large amounts of the people's money, and has entrusted the care of these splendid properties to its Conservation Department.

I am indeed loath to draw one single advantage to the United States from the terrible conflict now raging, and yet the fact stands clear that the European War does provide opportunity for work of readjustment.

Now that it is not possible for Americans to go to the Continent in quest of health, now that the search for rest and recreation and the renewal of strength must be carried on in the home country, the opportunity is offered for us to win recognition for Saratoga of the value of these waters, and to secure here the kind of development which may contribute to the welfare of all.

It has been the dream of many devotedly interested in this historic section of our land that Saratoga Springs might be built up in the same superb degree that the Continental spas have been developed. These dreams may or may not come true, but they certainly cannot come true without your help and assistance.

I realize that I am speaking to trained physicians, that your knowledge of this subject is far greater than is mine, and that my opinion as to the value and as to the healing qualities of these waters is based entirely upon reports made to me by those trained in medicine and in surgery. But if the opinion of those scientifically equipped be correct, am I not justified in urging upon the medical profession of New York your personal interest in the popularization of these waters? And if the qualities claimed are really possessed by these springs, may you not in truth be contributing toward the upbuilding of your State and to the profession of medicine in America in urging upon your patients the benefits here to be found?

Now that Saratoga in part is a State reservation, and its future to a degree controlled by our law-makers, you, with your knowledge and acquaintance with the situation here and with members of the State administration and of the Legislature, may, if you will, exercise great influence in the development of this reservation.

This may be called indulging in political activity, but I am very much in favor of men of your kind indulging in political activity. If you will permit the criticism, I have noticed that it is a tendency of the medical profession to take less than an active interest in the thing called politics. Where the public business is concerned, some of you at least put too much faith in "absent treatment." More and more does the public business require expert knowledge and the advantage of the advice at least and co-operation of those of technical training.

The State today is concerning itself with many things that were formerly deemed outside the province of government. We are trying to reduce infant mortality, taking up the question of medical inspection in the schools, examining into the effect of long working hours on the health of men and women, fighting slums, considering the ravages of preventable disease, coping with the problem of sanitation, and in a hundred other ways putting the State in the position of an over-parent vitally interested in the health of every citizen. We are warring on quacks and quackery, trying to stamp out the sale of habit-forming drugs, insisting upon purity in foods, guarding against deleterious ingredients, and laying down rules of all sorts for the conduct of life along healthful lines.

Because of this new emphasis in government, I say to you that the doctor surely as much, if not more than any other citizen, should be taking an alert and intelligent interest in public affairs and in public service, to the end that the wise thing may be done wisely and the unwise thing left undone.

In the State of New York, the medical profession has in the past realized its obligation to itself and to the public. The "diploma mills" that disgraced some other States have long been driven from our borders. Our qualifications for practice are exacting, and at every turn the physician and the surgeon have been found fighting for high and higher standards.

It has been your effort to drive out the unworthy and to guard against the base and the hurtful. The same obligation rests upon you as citizens. There is no automatic device for good government. There are no buttons that may be pushed or levers that may be pulled. It is a job that every citizen has got to get on and work at.

If politics are unworthy, that is not altogether the fault of the politician, but the result of civic indifference.

We are facing great decisions in the United States. I have no gift to see beyond the years, but I do know that if America's answers to present problems are less than wise and true, the very permanence of our free institutions will be threatened.

It is not alone preparedness for war that must be made, but preparedness for peace. We must have strong devoted citizens before we may expect strong devoted defenders, and strength and devotion are not to be found in slums or any figures that tell of a half a million or more deaths every year from preventable disease. Three hundred thousand infants die annually, and competent authorities assure us that one-half of them could be saved by means within reach of any modern community.

I stand for naval increases that will lift us above the fear of invasion.

I stand for a system of universal training that will make the national defense an inescapable obligation of citizenship, but equally do I stand for a program of social preparedness that will take the water out of blood, the chalk out of bones, and, so far as it is humanly possible, disease out of life.

You, who are before me, should be the leaders in such a campaign—some of you have been.

But this task of leadership cannot be fully discharged without a keen and courageous participation in the political life of the day.

New York has been very fortunate in having been able to call into the service of the State some members of your Association who have given of their energy and their great ability unselfishly to the public service, and I desire to make public recognition of the invaluable assistance which members of your profession rendered to me, as a public official, without reward or request for reward, both when I was District Attorney of New York and during my term as Governor.

The State needs all of her sons. The generosity and the public spirit, which I know is possessed by some of your profession, I trust is or will be characteristic of all of its members throughout the Empire State.

The oath, which you took upon your lips when the solemn duties of the healing art were imposed upon you, placed you, I believe, under a real and genuine obligation to consider and to conserve the welfare and the health of the State of New York—no less real and no less genuine than is the obligation to serve the patient who may require your service and your care.

This year, by an act of the Legislature to which I have given my approval, the Saratoga Reservation has been transferred from the Saratoga Reservation Commission to the jurisdiction of the Conservation Commissioner of the State. This action was taken in accordance with the policy of economy which I have advocated, of concentrating and reducing in number the departments and commissions having supervision of the State's activities. The Conservation Commission is charged by law with the care of the forest preserves, the water courses, oyster beds and other natural resources of the State. This department is therefore particularly well adapted to accept and administer this new responsibility.

The Saratoga Reservation Commission has thus been abolished, but, in passing, I cannot omit a reference to the devoted public service rendered by members of this Commission, and especially by the former Chairman, Hon. George Foster Peabody, who perceived perhaps more clearly than anyone else the great possibilities of Saratoga Springs as a health resort, and who has given without compensation unremittingly of his time and energy for its development. Mr. Peabody well typifies that great body of public spirited citizens which such a democracy as ours develops, who are always ready at large personal inconvenience, loss and sacrifice to devote themselves to the public good.

It seems to me that this is a particularly auspicious occasion for the State's new enterprise, and augurs well for its early and rapid development. No single factor can contribute more to its success than the dissemination of knowledge among the members of the medical profession, derived from personal observation, as to the facilities and advantages which Saratoga offers.

I cannot aid in your scientific deliberation; others can describe better than I the advantages of Saratoga as a health resort and the reasons for our confidence in its future and for our appeal to you for your support in its development. I do, however, wish again to most cordially extend to you the welcome of the State to its great resort, and assure you that its facilities, which I hope may rapidly be extended, will ever be at your disposal.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Tenth Annual Meeting.

The President, Dr. W. Stanton Gleason, called the one hundred and tenth annual meeting of the Medical Society of the State of New York to order in the Casino Auditorium, Tuesday, May 16th, at 12 M.

The invocation was delivered by Rev. H. P. LeF. Grabau.

After the invocation President Gleason said: It is a great pleasure, fellow members of the Medical Society of the State of New York and honored guests, for me to extend to you greetings and a welcome from the governing body of this organization. Fellow physicians, we come here to these annual meetings to uplift ourselves along the lines of our chosen profession. The interchange of thought is stimulating, the transfusion of ideas quickens and elevates us above the routine of daily diet. We come here for a serious purpose to better prepare ourselves to make an effort to relieve human suffering, which is the strongest argument of our humanity.

Gentlemen, you will find that the Scientific Committee have prepared for you a program to meet your every proclivity, and the Committee on Arrangements have well cared for your physical welfare in every detail.

In order that you may come into closer touch with the man who is responsible for the unusual and exceptional preparation that has been made for this meeting, I take great pleasure in introducing to you Dr. Albert Warren Ferris, Chairman of the Committee on Arrangements, who will deliver the Address of Welcome.

Mr. President, Delegates and Guests, Ladies and Gentlemen: Not to busy marts of trade, not to thriving commerce, not to crowded thoroughfares, nor yet to magnificent buildings and beautiful hospitals, but to restful scenes, to peaceful paths, to sylvan surroundings, we bid you welcome. We invite you to stand with us under the Gothic arches of noble elms; we invite you to the margins of babbling streams; to the shores of our silver lake; to the cool shadows of the woods, traversed by Indian war trails and traveling trails, worn deep by the moccasins of the copper-colored foresters of old. For this was the Kavaderosseras, the favorite resort of the Mohawks, their "Hillside Country of the Great River."

In this leafy retreat you will enjoy your deliberations and your scientific study. Let this be your "olive grove of Academe, Plato's retirement," whether your philosophy be that of Plato, and as such a knowledge of the eternal reality; or that of Socrates, embracing devotion to the pursuit of truth; or that of Aristotle, and therefore equivalent to critical systematized knowledge. If you are tempted to intermit scientific study for a time, following the philosophy of Epicurus, who pursued happiness in the manner dictated by reason, we can suggest many places of interest about you.

We invite you to wander out to the battlefields of Saratoga and Bemis Heights, where, in 1777, was fought one of the fifteen decisive battles of the world's history; where a handful of almost undisciplined yeomanry triumphed over the seasoned troops of a royal army; where our sires heard the call and sprang to the defense of our country, resisting the oppressor, driving out the invader, and leaving to us the heritage of a free land.

We bid you welcome to the vales and meadows where gush forth the healing streams of mineral water, as they did centuries before the white man discovered this continent. You will then give thought to the philosophy of Beneke and August Schott and Groedel; of Winternitz and Strasser and Kisch, concerning mineral waters for baths; also of Baruch and of Kellogg concerning fresh water for hydrotherapy; also of the chemist Haertl of Kisingen, and Ant the chemist and the engineer Anthony of Saratoga Springs, as you study crounotherapy and mineral balneology.

Last year we met at Buffalo, and contemplated that great wonder of the modern world, Niagara Falls, the embodiment and perfect type of everlasting, irresistable force; force which may be transmitted as far as you please, and be delivered in the form of heat, or of light or of electricity. Today we invite you to contemplate the no less mysterious combination of dynamic agencies in our mineral waters for drinking or bathing, due to their natural and inimitable chemical ingredients, and their great supersaturation with carbonic acid gas.

It is altogether fitting that this Society of ours should meet at Saratoga Springs more fully to comprehend the great plans of the State of New York for the development of the natural mineral water resources here, and the provision from year to year, as funds permit, of adequate equipment for their utilization.

Critical and intelligent invalids from the eastern part of the country, who heretofore have frequented the resorts of France, Germany, Austria, and England, in search of bath treatment, now look to you for advice, and to New York State's provision at Saratoga Springs for the healing waters, which nowhere east of the Rocky Mountains can be found in such abundance and with such great supersaturation of carbonic acid gas. We physicians fully recognize that ours is the opportunity and that parallel with opportunity lies duty.

Fortunately, this is an age of preparedness.

The world's work today lies largely in the fields of conservation, preservation, and prevention; and nowhere are these agencies of greater value than in the domain of health. We aim at avoidance of disease, at conservation of health, and at the promotion of longevity; and in these efforts the State of New York joins us.

A splendid national festival of ancient Greece, whose history goes further back than the most ancient records, consisted of the Olympic games. They were held, in the beginning, in Elis. It was the custom to hold the competitions on a track prepared outside the city. After a rigid course of training involving strict self-denial for many months or years, the contests were held and the victors were borne home. They did not re-enter the city through the gates. Any one could come in through the gates; the beggar, the maimed, the blind, the meanest and lowest citizen came in through the gates. No. Borne aloft on the shoulders of their countrymen, with their temples crowned with olive wreaths, the victors in the Olympic games came in through breaches made in the walls; through great openings made through the masonry, in triumph.

Physicians, yours has been the self-denial of years; yours has been the slow, difficult toiling up the hill of learning and achievement; yours has been the courageous battle with the unseen foe, with contagion, with pestilence. Victors you are today; conquerors of so many of the agencies of death. And so we greet you in your triumph; for "Peace hath her victories no less renowned than War." The walls of our city are down. Come in, we pray you, and take possession.

At the conclusion of the Address of Welcome by Dr. Ferris the President said: A message has been handed me that the Hon. Edgar T. Brackett, Saratoga Springs, is unable to be present. He sends us his sorrowful regrets and wishes us Godspeed.

Before introducing the Hon. William S. Ostrander, Surrogate of Saratoga County, to deliver an Address of Welcome, I am going to ask Dr. Abraham Jacobi to make a few remarks.

After an enthusiastic reception Dr. Jacobi said: Ladies and Gentlement, I have just asked your President why he did that? I received no reply, but still as he has been good enough to call me up and to give me an opportunity of looking straight into your faces, I thank him for it.

I have been, as some of you may have read in very old books, the President of this Society a number of years ago. Some of you may have heard your fathers speak of the fact that I was President of this Society in 1882. That was at a time when the waves of rebellion went high in the New York State Medical Society. Perhaps you do not know that you owe to that old society the delivery from the old Code of Ethics. At that time we abolished the Code of Ethics. Afterwards, in 1903, the American Medical Association abolished the code, and finally gave you what is known as the Principles of Ethics and made it possible for all of us to re-enter the Association, the American Medical Association. We are reasonably free and an independent medical union all over the state. I want to remind you of that fact simply because it is good to look back on such historical adventures. Now it is a part of our history.

I have nothing further to say except that I want you to think back of what is behind you. We have, since I became a member of this Society, made many and great strides forward. When I entered the medical profession it was not then what it is today. I knew very few of you unless I have made your acquaintance in late times. Many of you have become my friends. All of you I want to become my friends, and the best thing you can do for me and for the medical profession is to come to your meetings regularly every year as I have tried to do. If I could not do much for the Medical Society of the State of New York, at all events I have come here to see what you could do for it, and you have done a great deal for me certainly, and I have been rewarded for my coming here. If you do not object I will come here again next year, and in ten years and perhaps in twenty-five years. That is all I have to say. I thank you.

THE PRESIDENT: On behalf of the Society, I desire to tender Dr. Jacobi a vote of thanks.

THE PRESIDENT: The next order on the program is the reading of the minutes of the last meeting by the Secretary, Dr. Floyd M. Crandall.

DR. CRANDALL: Inasmuch as the minutes have been printed and placed in the hands of each member, if there are no objections I would suggest that they be accepted as printed.

Seconded and carried.

THE PRESIDENT: We will now have the pleasure of listening to the Hon. William S. Ostrander, Surrogate of Saratoga County.

MR. OSTRANDER: Gentlemen of the Convention, If you can imagine the embarrassment of a rather short, fat man attempting to borrow a dress suit for some great occasion, you have something of the feeling which I have, when at the eleventh hour I am asked to stand in the place of Senator Brackett and address this assembly. Alongside this embarrassment, however, is the great pleasure of meeting the representatives, the pick of the pick, of the New York State medical profession.

I suppose you are all familiar with the remark of Mr. Dooley about the learned gentleman. He says he was such a learned man that he told you simple things in a way that you would not be able to understand them at all. And that is the awe I have of the medical profession. If I am advised by a doctor to take salts I search the dictionary and go through long words in order to find out what he has told me.

It is indeed a great pleasure to meet you here apart from your duties. Ordinarily, I meet the results of your labors in my court. I am glad to see these very shining faces before me and to know that you meet here for the purpose of interchanging ideas for the benefit and uplift of humanity.

I had the pleasure not long ago of holding to my ear the receiver of a telephone and listening to people talking in San Francisco. The answers came back instantaneously. That reminded me of what I had read about the early history of this community in the days of the Revolution, when General Schuyler rode his horse up from New York to the old Dutch Reform Church at Schuylerville. The people came in for several miles on horseback, from little settlements, and I remember very well how some three or four weeks after this he told them the first news of the battle of Lexington, that the war was on, and that they must be prepared to meet it. The comparison between the transmission of the news of the Battle of Lexington and the transmission of the answers to my question from San Francisco instantaneously is perhaps but a fair illustration of the progress which has been made in your own profession and art. I take it, medicine and surgery have advanced almost as rapidly in the few years of this twentieth century as has the transmission of news by Long Distance Telephone. I only mention this as showing the profound respect that we of the other professions have for the wonderful skill, knowledge and progress that has been made by your profession in battling with disease.

We welcome you to your labors and to your pleasures in this city. This is a peculiar spot for the gathering of such an assembly as this. Here many centuries ago were discovered these springs, the old High Rock Springs, which the Indians revered as the gift of the Great Spirit. Here they were bringing their sick to be healed by these waters. Here, later, Father Joe, the great French Missionary, was brought to be healed of his infirmities. The Indians brought Sir William Johnson of the Mohawk Valley to be cured of his ailments. Here these wonderful springs have bubbled up from the bowels of the earth and the mineral qualities overflowed until they form a great cone which may be seen.

You as physicians may analyze and find out what these waters contain, but it is beyond the cunning of any man to put them back again. Here we have pure water flowing over mineral beds hundreds and thousands of feet below the surface which gradually finds its way to the surface. This is Nature's healing place. You may travel the world over and you will not find their counterpart, yet they are here in profusion.

The State of New York has recognized the immense importance of these springs for the health of the people. It has adopted measures so that the purity of these waters may be guaranteed and the official stamp has been placed upon them. We invite you to inspect these wonderful springs and to test their therapeutic value, and we believe if you do this you will carry away with you a message of the wonderful effect of this natural hydrotherapy for the healing of the nation. We expect you to advise your patients that it will not be necessary for them to travel the world over to get the wonderful results which come from these healing waters. Alongside these waters we have the wonderful foothills of the Adirondacks, whose air is so invigorating that it is scarcely equaled in any other place. We invite you to visit our parks and to the beauty spots in this vicinity. Our good Dr. Ferris has provided for patients here little strolls and walks suitable to their needs and to their ability. This is not only Nature's healing place, it is Nature's beauty spot, and no man can come here and go away from here without receiving benefit that he will remember for a long time.

We have our places of amusement, our places of sightseeing, and several miles from here, as Dr. Ferris told you, is the old battleground on which some of the most decisive battles of the world were fought, and where the liberties of our country were assured. It is a nice drive in a motor car to these historic places, these famous battlegrounds. We hope you will find time to visit them.

We trust you will also find here what is perhaps more pleasant than any of those—the hand of fellowship, a good, hearty welcome which we have for you. I was going to offer you the keys to the city, but Dr. Ferris has done better—he has battered down the walls, and you are welcome in both public and private places, and we hope you will not only have a profitable but very pleasant season with us.

Dr. Haven Emerson, President of the Department of Health, New York City, delivered the Oration on Medicine. He selected for his subject "Will the Private Practitioner Determine the Future of Public Health Work?"*

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* See New York State Journal of Medicine, May, 1916, page 223.

Medical Society of the State of New York

ANNUAL REPORTS

1915

In Memoriam.

WISNER R. TOWNSEND, M.D.

Died March 12, 1916.

Secretary of the Medical Society of the State of New York for ten consecutive years.

Paramount to rules and orders, and rising high above business considerations is the tribute we owe to the memory of our late Secretary, the man, and the physician, Dr. Wisner R. Townsend. Encomiums are meaningless to you, his friends, for it was the little unremembered acts of devotion that bound him to you. His winsome personality and adaptability placed him in close touch with our entire membership. Out of the depths of our appreciation we place this laurel wreath of affection to his memory in the archives of this Society.

W. Stanton Gleason,
President.

REPORT OF THE PRESIDENT.

To the House of Delegates:

Precedent and the by-laws have established that I render to you at the close of the society year an account of my obligations as your presiding officer. In presenting this record of stewardship I wish to express again my deep appreciation of the high honor you conferred, in placing me in all confidence at the head of your great organization. Earnest and sincere support has been accorded me, and while the duties of a president in a sense have a limited phase, yet they form an essential factor in upholding and safeguarding constitutional mandates.

This one hundred and tenth annual meeting marks the close of a period, a decade beyond our centenary, and in retrospect it is well for us to briefly estimate our status as an organized body, whether it be for progress or inertia, whether we are advancing consistent with the present era of science and development, or whether we are following the unchanging grooves of precedent. The amalgamation of the State Medical Societies was accomplished in 1905 by the best minds of this period. The fundamentals were well reviewed through the records of the past, and the principles of government that had survived the test of time were incorporated to meet the requirements of a united profession. The tenets of government so studiously upbuilded were again equalized to our expansion by the complete revision of the by-laws in 1913. Our scientific development has been positive, and a greater interest has been stimulated through the division of the scientific body into sections. The best minds of our State reflect their influence through the high standard of work accomplished. Your official body has been judiciously and carefully selected, and it has been their desire to keep us in the advanced line of progress.

Our Society covers as great a territory as some of the nations of Europe, and in this area are many men of many minds with both urban and rural adaptations. In environment the physicians of the smaller cities, towns and country districts, are not urged by the same influences as those in the larger centers of population. There may be the same training, education and experience, but conditions and surroundings alter the viewpoint; then again varied proclivities in large cities make for a varied alignment.

The opportunity offered your President through his long tenure of office in the executive body enables him to gauge with a reasonable degree of certainty either elements of contentment, or of unrest, under existing methods. Contentment and a rapidly broadening interest in high grade scientific work are largely the governing factors in the District Branch and County Meetings. Sectional unrest upon specific questions are periodically manifest. The resource is always the House of Delegates, which is and should be arbiter on all matters of expediency. The body politic of our State and Nation is amalgamated into action by State and National delegates, and the voice of the people is heard through the vote of the majority of delegates grouped in convention. The will of the eight thousand members of the Medical Society of the State of New York is the decision of the delegates chosen by them in annual convention. And when certain questions are annually decided in the affirmative over a period of years, by the ever changing individual delegates, the reasonable conclusion to assume is that the questions are practically settled. Therefore it is not incumbent upon us to reopen closed arguments.

The work of the year has been faithfully performed by those who have been chosen for the responsibilities of the Council. The report of your Treasurer is worthy of special commendation. The Finance Committee, although laboring under a specially heavy budget of expense, close their fiscal year with a credit balance of over eleven hundred dollars.

Your Committee on Scientific Work embody in the fulfillment of their obligations a program of unusual excellence. Many of us do not appreciate the mass of detail that comes before this Committee, and especially its Chairman, in order to give us two days of scientific enlightenment and pleasure.

The Committee on Arrangements have fulfilled our high expectations in the attention to every detail for our comfort and entertainment. The commercial exhibit, always the source of great responsibility and care, was this year eliminated, as an experimental innovation.

Membership.

An energetic effort was made at the beginning of the current year for an increased membership, and in response to a special appeal to the officers of the County Societies we record today the highest total in the history of the State Society. Loss, by death, resignation, etc., automatically and periodically, decreased our normal membership approximately two hundred names; this deduction must be overcome and accretions maintained for numerical progress. I would urge that the Presidents and Secretaries of the County Societies make it a personal obligation, to add to their membership every available physician in their jurisdiction who will uphold the precepts of our Society.

Legislation.

Legislation affecting directly or indirectly the medical profession looms before us as the most important consideration of the year. The late President Rodman of the American Medical Association convened in January representatives of the State Medical Societies of the United States at Washington to bring before President Wilson and Congress the proposal for careful selection of medical men in the move for military preparedness. In the tentative plans drawn up for enactment by Congress no attempt had been made to provide the increased military force with adequate medical attendance. We must be prepared before the emergency arises, and physicians are the best judges in the final selection of medical men to care for the health and lives of the soldiers of our country. At the December meeting of the Council a committee was appointed to further the Societies' interests in this important matter.

In our State Legislature many bills have been introduced attacking the fundamentals of regular medicine. The desire of irregular practitioners to undermine the legal protection of the public, and give greater power to medical sectarianism is very much in evidence. The intelligent effective work of the Committee on Legislation is worthy our highest praise; they have been tireless in the effort to stem judiciously the flood of pending adverse laws detrimental to the best interest of the profession. The indifference and lack of information on important medical legislation of many of our members is a serious drawback to the Legislative Committee, for they need the intelligent and balanced support of every physician in our membership to effectively prove to law makers our honesty of purpose and the justice of our claims. I would urge that the Committee on Legislation in every County Society in the State keep in touch and informed on legislation at Albany, of every bill presented bearing on the "Medical Practice Act," and render their reports at every county society meeting. Each member can thus become part of the defense line in taking the mental step toward a more thorough understanding of the possibilities of vicious legislation, and raise their voices before rather than after laws unjust to the profession are enacted.

Health Insurance.

A compulsory health insurance bill was introduced in the Legislature on January 24th by Senator Mills, and which is one of the most important proposals ever brought before the State. Its import in a broad sense is the effort to introduce into the United States the compulsory health insurance of Great Britain or the sickness insurance of Germany. Every employee whose income is not over one hundred dollars a month will, when he becomes ill or injured, be given the right to have the care of physicians, medicines and surgical supplies. The complete bill was published in the February number of the State Journal. In the same issue a careful and complete estimate of its bearing on the medical profession was discussed by the Committee on Publication. It is the duty of every physician to familiarize himself with the proposed enactment, recognizing the fact that health insurance sooner or later is inevitable. Vital principles bearing on the integrity of the medical fabric are under discussion, but the profession can feel full confidence through their representatives on the committees.

We can profit by the experience of English and German physicians in considering equally the public and our own economic interests.

The Intermediary Committee.

Following a discussion by the Council relative to the control of Medical Ethics by the Board of Regents, a general recognition of the importance of the State Medical Society to cope with the situation under present existing circumstances was tacitly acknowledged. A Committee was appointed at the January meeting of the Council to act in an intermediary capacity and provide ways and means whereby the present existing circumstances might be remedied.

There is a growing sentiment that an effort should be made to interest the Board of Regents to take steps to legally recognize the Medical Society of the State of New York. That the Board of Regents should propose that the interpretation of the principles of ethics of the medical profession should be legally given over to the Medical Society of the State of New York, and that the form of this legal recognition should include the right of the Medical Society of the State of New York to bring charges of unprofessional conduct or breach of ethics, to hear such charges and to fix the penalty. That it should be binding upon the Board of Regents to impose such penalty as the Medical Society of the State of New York should fix, without further hearing or hearings upon the matter.

Such a plan, once in effect, would see the end of the kind of medical legislation which we now find it necessary to combat.

It is confidently believed that this procedure can be brought about by proper efforts, properly directed.

I recommend to you the advisability of such action and the purport of this Committee.

W. Stanton Gleason,
President.

April 1, 1916.

REPORT OF THE SECRETARY.

To the House of Delegates:

It is with a sad heart that I undertake the completion of the report of the Secretary, which had been nearly written upon my assuming the duties of the office in March. Dr. Townsend was methodical and business-like to a marked degree, and I found every detail of his work complete. I feel it but just in this report, which is largely his, to bear tribute to a phase of his character which it has been my privilege to particularly observe. Friends for many years, and closely associated in portions of the Society's work, I acquired a profound respect for his executive ability and business sagacity, which has been increased these recent weeks by more intimate knowledge of his work. Assuming the Secretaryship at the time of amalgamation, when radical changes in organization were effected and everything was new and untried, he established a business office upon true business principles and developed it to a high degree of efficiency. In a city full of efficient business offices, few could be found more efficient for the economical performance of the special work to which they are devoted. No easy task is imposed upon the successor of such a man as Wisner R. Townsend.

In compliance with Section 3, Chapter VI of the By-Laws, the Secretary submits the following report for the year ending December 31, 1916:

Membership, December 31, 1914	7,449	
New Members, 1915	562	
Reinstated Members, 1915	207	
		8,218
Deaths	123	
Resignations	46	
		169
		8,049
Dropped for non-payment of dues, December 31, 1915		333
		7,716
Elected after October 1, 1915, and credited to 1916		224
Membership, January 1, 1916		7,940
Membership, January 1, 1915		7,621
Membership, January 1, 1914		7,239
Membership, January 1, 1913		6,964

On January 21, 1907, the membership of the State Society was 5,857. Today there is an increase of over 2,000. During these nine years there have been 820 deaths, 451 resignations, and 18 expulsions, a total of 1,289. Each year a certain number are dropped for non-payment of dues, but before the close of the next year about two-thirds of these pay their dues and are reinstated. The loss from this source from 1907 to date has only been 1,274, an average of 142 a year.

During these nine years 4,610 new members have been admitted and the membership of the Society is increasing more rapidly than are the accessions to the profession.

The Honor List of Counties whose membership for 1915 is fully paid up is as follows: Clinton, Columbia, Franklin, Lewis, Orange, Washington, and Yates.

The complaint brought by Dr. W. B. Reid through the courts against the State Society was dismissed on January 4, 1916, and the action taken by the State Society completely sustained.

Floyd M. Crandall,
Secretary.

April 1, 1916.

REPORT OF THE COUNCIL.

To the House of Delegates:

The Council of the Medical Society of the State of New York begs leave to present the following report:

During the past year meetings have been held on the following dates:

April 29, 1915, in Buffalo. Minutes will be found in the New York State Journal of Medicine, Volume 15, No. 5, page 203.

May 21, 1915, in New York City. Minutes will be found in the New York State Journal of Medicine, Vol. 15, No. 6, page 247.

December 10, 1915, in New York City. Minutes will be found in the New York State Journal of Medicine, Vol. 16, No. 1, page 45.

January 21, 1916, in New York City. Minutes will be found in the New York State Journal of Medicine, Vol. 16, No. 2, page 100.

March 15, 1916, in New York City. Minutes will be found in the New York State Journal of Medicine, Vol. 16, No. 4, page 216.

The Council respectfully submits the following report of the Committee appointed to prepare amendments to the by-laws in conformity with the recommendations in the President's address, and also to prepare an amendment to Chapter XII of the present By-Laws, which is at present ambiguous:

October 30, 1915.

Committee on Proposed Amendments to By-Laws,

To the Council:

The Committee appointed by the Council at its meeting on May 21, 1915, to propose amendments to the By-Laws, in accordance with the recommendations in the President's address at the meeting held in Buffalo, desire to present the following:

First.—That no amendment it could suggest would give the Committee on Public Health greater freedom of action.

Second.—Amend the By-Laws, Chapter VII, Section 2, by adding the words "A Committee on Economics," and a new Section 8, to read as follows: "The Committee on Medical Economics shall consist of five members, including the Chairman. It shall investigate all matters affecting the economic status of physicians, and shall report annually to the House of Delegates such recommendations as may, in its judgment, seem proper."

Third.—Chapter VII, Section 8, then becomes Section 9.

Fourth.—The Committee believes that the recommendation regarding the change of the name of the Committee on Medical Research should not be approved because this Committee was organized for a definite purpose, namely, to work for medical research and to oppose anti-vivisection legislation. In addition, the Committee has funds which were left to it and which might be jeopardized if the Committee changes its name and functions.

Fifth.—To give the powers suggested to the Committee on Public Health add to Chapter VII, Section 5, at the end after the words "Public Health" the words "and medical education."

Sixth.—As the By-Laws relating to amendments are ambiguous, the following change is suggested:

For Chapter XII of the By-Laws substitute for Section 1 the following: "No article of these By-Laws shall be amended except by a majority vote of the delegates present and voting at any annual meeting, nor unless notice of the proposed amendment shall have been given at a previous annual meeting and shall have been published twice during the year in the official bulletin or journal of the Society, or sent by order of the House of Delegates to each county society in affiliation with the Society at least two months before the meeting at which final action shall be taken thereon."

Respectfully submitted,
Frank Van Fleet, *Chairman,*
Ralph Waldo,
Floyd M. Crandall.

Respectfully submitted,
Floyd M. Crandall,
Secretary.

April 1, 1916.

REPORT OF THE COMMITTEE ON PUBLICATION APPOINTED BY THE COUNCIL.

To the House of Delegates:

The Council, at the meeting held in Buffalo, April 29, 1915, appointed the following Committee on Publication for the ensuing year: Drs. Floyd M. Crandall, Alexander Lambert, John C. MacEvitt, Victor A. Robertson and Samuel W. S. Toms. At the same meeting Dr. MacEvitt was appointed editor.

Journal.

The Journal during 1915 has been issued regularly each month, the edition being 8,750 to 9,000. In spite of a gross increase of over 4,000 copies, the cost to the State Society for the year was $2,803.82 less than in 1914. This was largely due to using the same grade of paper used previous to 1914, and to the reduction in the size of the Journal to fifty-six pages, as suggested by the Council. There was an increase of $452 in the receipts from advertisements, and $200 was collected on doubtful debts, which the Treasurer had charged off the previous year.

It is with pleasure that the Committee reports that during the year 1915 all monies due the Society were collected, and there were no doubtful debts to be charged off at the end of the year.

Some increase in the size and cost of the JOURNAL will probably be necessary during the year 1916, as an edition of fifty-six pages may not be large enough to publish all the papers presented at the Annual Meeting. There are also other papers read before the District Branches and County Societies which are valuable and should be published. There will be of necessity an increase in the number of copies issued.

DIRECTORY.

The recommendations made by the Committee in its last report and approved by the Council were carried out in the publication of the 1915 Directory, with the result that the cost to the Society was $5,016.87, as against $6,380.76 in 1914, a saving of $1,363.89. Part of this reduction was due to using a paper cover at a saving of about $800. The book was also reduced in size from 871 to 840 pages through careful editing in the way of abbreviations and through the omission of the benevolent institutions and some of the societies. There was an increase in the receipts from advertising and sales amounting to $232.

The edition for 1915 was 8,700, three hundred more books than the previous year. It will probably be necessary to increase the edition again this year, owing to the addition to the membership of the State Society of 267 members since October 1, 1915, to which there will be added at least 200 more before the Directory is issued.

There was a total saving in the publication expenses in 1915 over 1914 of $4,167.71. At the same time the value of the advertising increased $557.

Respectfully submitted,
FLOYD M. CRANDALL, *Chairman*,
ALEXANDER LAMBERT,
JOHN C. MACEVITT,
VICTOR A. ROBERTSON,
SAMUEL W. S. TOMS.

April 1, 1916.

REPORT OF THE COMMITTEE ON PRIZE ESSAYS.

To the House of Delegates:

The Committee on Prize Essays would respectfully report that no essay has been presented for the Lucien Howe Prize for 1916.

Respectfully submitted,

A. VANDER VEER, *Chairman*.
JOHN F. W. WHITBECK,
EDWARD D. FISHER.

April 1, 1916.

REPORT OF THE TREASURER.

To the House of Delegates:

The Treasurer desires to draw the attention of the Society to some further explanations of the financial condition of the treasury than is contained in the mere figures of each succeeding annual report.

Taking first the total amount of funds in possession of the Society at the end of each year, which, in this Society, is represented at present by the bank balance, we have the following:

Bank Balances. December 31st.	Excess of Income.	Deficit.
1906.....$5,328.19	$3,234.29	....
1907..... 4,788.88	....	$1,287.37
1908..... 5,300.30	642.46	....
1909..... 9,426.79	3,311.63	....
1910.....10,096.73	....	479.22
1911.....10,608.33	850.85	....
1912..... 8,617.78	....	1,306.09
1913..... 9,448.08	879.40	....
1914..... 9,939.60	....	759.15
1915.....11,381.89	1,153.21	....
	$10,071.84	$3,831.83

Excess of income for the last ten years, $6,240.01.

The cost of the JOURNAL to the Society was reduced from $5,763.13 to $2,959.31—a saving of $2,803.82.

Although the largest part of this saving was due to the reduction in the cost of publication there was also an increase over the previous year of $452.69 in the receipts from advertisements, and $200 of the doubtful debt charged off in 1914 was collected. It is a pleasure to report that in 1915 there were no doubtful debts to be charged off.

The cost of the Directory to the Society, in spite of an increase in the edition of 300 copies, was also reduced from $6,380.76 to $5,016.87—a saving of $1,363.89.

An increase in the cost of both JOURNAL and Directory will be necessary in 1916, owing to the large increase in the price of paper, and also to the fact that it will be necessary to publish a larger JOURNAL, as it has been found that a 56-page journal is not large enough to include all the papers read at the Annual Meeting.

To offset this increase in expenses it is fair to estimate an increase in revenue from dues of from $900 to $1,000, as the membership today is 8,135, as against that of April 1, 1915—7,868; an increase already of 267 members, to which more will be added before the end of the year. There will also be a reduction of about $1,000 in the traveling expenses of the delegates to the American Medical Association, owing to the difference in expense between the trip to San Francisco and to Detroit.

ALEXANDER LAMBERT,
April 1, 1916. *Treasurer*.

REPORT OF THE TREASURER.

Alexander Lambert, *Treasurer,* In Account with The Medical Society of the State of New York.

Dr. Cr.

CASH RECEIPTS, YEAR ENDING DECEMBER 31, 1915.

To Balance		$9,939.60
" Directory, 1912	$ 10.00	
" Directory, 1913	65.00	
" Directory, 1914	668.50	
" Directory, 1915	2,460.50	
" Clerical Work	119.10	
" Interest on Deposits	397.86	
" Interest on Bonds	90.00	
" Sundry Receipts	7.08	
" Committee on Medical Research	4.50	
" Advertising	5,398.06	
" Subscriptions and Sales	235.59	
" Annual Meeting	19.00	
" Annual Dues and Arrears	102.00	
" Annual Dues, 1913	33.00	
" Annual Dues, 1914	588.00	
" Annual Dues, 1915	22,789.00	
" Annual Dues, 1916	630.00	
		33,617.19
		$43,556.79

CASH PAYMENTS, YEAR ENDING DECEMBER 31, 1915.

By Annual Dues Overpayments		$76.00
Traveling Expenses	$ 341.03	
Delegates A. M. A. Meeting	1,354.20	
		1,695.23
Accountant		200.00
Carfare		24.65
Express		29.85
Treasurer's Bond		12.50
Exchange on Checks		12.87
Sundry Cash Disbursements		187.63
Telephone		145.84
Stationery and Printing		306.06
Postage		316.50
Rent		900.00
Insurance		5 70
Committee on Legislation		482.27
Legal Expense		6,727.45
1914 Directory		74.86
1915 Directory		7,830.37
Journal Expense		316.95
Journal Salaries		1,313.30
Journal Commissions		745.27
Journal Publication		6,479.59
District Branches		329.45
Salaries		1,988.05
Annual Meeting		1,338.64
Secretary		500.00
Interest on Bonds Deposited		90.00
Committee on Medical Research		45.87
		$32,174.90
Balance in Guaranty Trust Co.:		
General Account	$10,870.92	
Com. on Medical Research	510.97	
		11,381.89
		$43,556.79

ANNUAL DUES, 1915.

County.	*Amt. Paid.*	*County.*	*Amt. Paid.*
Albany	$492.00	Onondaga	$600.00
Allegany	108.00	Ontario	213.00
Bronx	750.00	Orange	276.00
Broome	258.00	Orleans	81.00
Cattaraugus	120.00	Oswego	162.00
Cayuga	177.00	Otsego	178.00
Chautauqua	285.00	Queens-Nassau	444.00
Chemung	162.00	Rensselaer	270.00
Chenango	105.00	Richmond	150.00
Clinton	153.00	Rockland	99.00
Columbia	99.00	St. Lawrence	159.00
Cortland	102.00	Saratoga	147.00
Delaware	81.00	Schenectady	294.00
Dutchess	282.00	Schoharie	57.00
Erie	1,590.00	Schuyler	39.00
Essex	75.00	Seneca	87.00
Franklin	147.00	Steuben	219.00
Fulton	99.00	Suffolk	333.00
Genesee	99.00	Sullivan	66.00
Greene	69.00	Tioga	75.00
Herkimer	165.00	Tompkins	159.00
Jefferson	195.00	Ulster	192.00
Kings	2,694.00	Warren	90.00
Lewis	51.00	Washington	108.00
Livingston	111.00	Wayne	117.00
Madison	78.00	Westchester	726.00
Monroe	936.00	Wyoming	96.00
Montgomery	162.00	Yates	57.00
New York	7,407.00		
Niagara	228.00		$23,278.00
Oneida	504.00		

ADVANCE DUES, 1916.

County.	*Amt. Paid.*	*County.*	*Amt. Paid.*
Allegany	$6.00	Ontario	$6.00
Bronx	51.00	Orleans	12.00
Broome	3.00	Rensselaer	75.00
Chautauqua	12.00	Richmond	3.00
Chenango	54.00	Rockland	3.00
Columbia	72.00	St. Lawrence	12.00
Dutchess	3.00	Saratoga	9.00
Franklin	96.00	Schoharie	9.00
Herkimer	72.00	Suffolk	3.00
Kings	42.00	Washington	3.00
Livingston	3.00	Westchester	9.00
Monroe	69.00		
Oneida	3.00		$630.00

DIRECTORY ACCOUNT.

Expenditures.

Postage		$410.40	
Stationery and Printing		214.61	
Delivery		531.31	
County Clerk's Fees		17.00	
Salaries	$1,736.95		
Commission	352.00		
		2,088.95	
Printing and Binding Directory.		4,550.60	
			$7,812.87

Income.

Advertisements	$1,666.00	
Sales	1,130.00	
		2,796.00
Cost of Directory		$5,016.87

REPORT OF THE TREASURER.

JOURNAL ACCOUNT, YEAR ENDING DECEMBER 31, 1915.

Income.

Advertisements	$5,848.13	
Subscriptions and Sales	234.79	
Doubtful Debts Collected	200.00	
		$6,282.92
Cost of JOURNAL		$2,959.31
		$9,242.23

Expenditures.

Publication		$6,232.09	
Expense		316.65	
Salaries	$1,313.30		
Commission	1,228.55		
		2,541.85	
Discount		151.64	
			$9,242.23

BALANCE SHEET DECEMBER 31, 1915.

Assets.

Cash, Bank	$11,381.89	
Petty	13.35	
		$11,395.24
Accounts Receivable		179.34
Furniture and Fixtures	$287.75	
Directory Catalogue	250.00	
		537.75
Directory, 1915		350.00
Union Dime Savings Institution, Lucien Howe Prize Fund	$514.24	
Union Dime Savings Institution, Merritt H. Cash Prize Fund	493.37	
Title G. & T. Mtg. Ctfs.	2,000.00	
		3,007.61
		$15,469.94

Liabilities.

Annual Dues, 1916		$630.00	
Committee on Medical Research		510.97	
Accounts Payable		129.24	
Lucien Howe Prize Fund	$2,014.24		
Merritt H. Cash Prize Fund	993.37		
		3,007.61	
Surplus Jan. 1, 1915	$10,038.91		
Gain, 1915	1,153.21		
Surplus Dec. 31, 1915		11,192.12	
			$15,469.94

I hereby certify that the above Balance Sheet is correct, as shown by the books.

A. H. Wicks,
Certified Public Accountant,
302 Broadway, New York.

INCOME AND EXPENDITURES, YEAR ENDING DECEMBER 31, 1915.

Income.

Arrears of Dues	$720.00	
Dues, 1915	23,205.00	
Interest on Deposits	397.86	
Clerical Work	119.10	
Directory, 1912	10.00	
Directory, 1913	65.00	
Directory, 1914	193.64	
		$24,710.60

Expenditures.

Expense	$2,137.75	
Telephone	145.84	
Stationery and Printing	306.06	
Postage	311.50	
Rent	900.00	
Insurance	5.70	
Salaries	1,988.05	
Committee on Legislation	503.27	
Legal Expense	6,727.45	
Annual Meeting	1,726.14	
District Branches	329.45	
1915 Directory	5,016.87	
Secretary	500.00	
JOURNAL Cost	2,959.31	
		$23,557.39
Excess of Income		1,153.21
		$24,710.60

INCOME AND EXPENDITURES, YEAR ENDING DECEMBER 31, 1914.

Income.

Arrears of Dues	$1,038.00	
Dues, 1914	22,254.00	
Interest on Deposits	384.32	
Clerical Work	71.38	
Directory, 1912	5.00	
Directory, 1913	19.73	
		$23,772.43
Excess of Expenditures		759.15
		$24,531.58

Expenditures.

Expense	$1,033.23	
Telephone	153.54	
Stationery and Printing	320.83	
Postage	154.54	
Rent	900.00	
Insurance	5.70	
Salaries	1,896.80	
Committee on Legislation	390.16	
Legal Expense	6,522.50	
Annual Meeting	215.28	
District Branches	295.11	
1914 Directory	6,380.76	
Secretary	500.00	
JOURNAL Cost	5,763.13	
		$24,531.58

REPORT OF THE COMMITTEE ON PUBLIC HEALTH.

To the House of Delegates:

The Committee on Public Health begs respectfully to report that nothing has transpired during the year requiring its special action.

The progressive activity of the State Department of Health is worthy of highest approval and cannot but yield results far reaching in benefit, in the control and lessening of disease and the education of the public at large along sanitary and prophylactic lines. It is certainly being demonstrated that "public health is purchasable," and that "within natural limitations a community can determine its own death rate."

Good work is being done in forestry and reforestration which must have its influence upon public health.

The appointment of Dr. Haven Emerson to succeed Dr. Goldwater as Commissioner of Health of New York is of State wide interest, as he will not only continue the able policies of his predecessor, but his wonderful energy and efficiency as a health officer will be felt as a stimulus throughout the State to those interested in public health.

Whatever may be the opinion in general regarding State or Federal control of the Quarantine Station, there can be no doubt in our minds of the loss we have met, in the death of our late Officer of the Port, Dr. J. J. O'Connell, who was unique in his probity, executive ability and those rare qualities of heart which make a man generally loved.

Efforts being made in Amsterdam, N. Y., to focus all agencies on concentration of the year's efforts upon infant's and child's welfare promise interesting results, which cannot but be influential throughout the State.

Of public health measures before the State Legislature, the Mills bill is perhaps attracting widest attention. Some such measure as it proposes must probably become law in the near future, but this bill merits the critical attention of every physician in the State; as it must of necessity have a bearing upon medical incomes in general and presents the very difficult problem of contract practice, which may be fraught with evils and tend to lower the tone of our ethical standards.

The Committee heartily endorses and would urge the adoption by the Medical Society of the State of New York of the following resolution, which was adopted by the Public Health Council at its last meeting:

It is the judgment of the Committee that laboratory facilities in the State both within and without the Department being now adequate to make diagnostic examinations in diphtheria, typhoid fever and tuberculosis, it is feasible and desirable for the Department to enforce the sections of the Sanitary Code relating to prompt and uniform notification in these diseases by such means as will compel physicians at once to seek laboratory assistance in diagnosis in all doubtful cases.

The Committee on Public Health trusts that the proposed amendment to the By-Laws increasing its membership from three to nine will find favorable action at the coming Annual Meeting of the Society.

Respectfully submitted,

JOSHUA M. VAN COTT, *Chairman,*
ALLEN A. JONES,
CHARLES STOVER.

April 1, 1916.

REPORT OF THE COMMITTEE ON LEGISLATION.

To the House of Delegates:

Your Legislative Committee has during the present session of the Legislature taken position on the following bills, of which a brief history is attached.

It has favored: Pr. S. 595, and A. 793, which amends the Public Health Law, by fixing a penalty for failure to file birth certificates. This bill has passed both Houses, and has been signed by the Governor, and is now a law.

Pr. A. 57, amending the Public Health Law, in relation to the sale of habit forming drugs, which bill is still in the Committee on Public Health in the Senate, and in Rules in the Assembly. It is improbable that the bill will be passed.

Pr. S. 520, and Pr. A. 684, which amends the Public Health Law, in relation to habit forming drugs, by requiring the registration at first treatment of all narcotic addicts, and making other necessary changes in the law, but not requiring duplication of the records necessary under the Harrison Law. This bill is in the Committee on Rules, in the Assembly, and will be reported favorably by the Senate and will probably be passed.

Pr. A. 1316, amending the Public Health Law in relation to habit forming drugs. This bill permits all narcotic drugs, which are seized pursuant to law, to be delivered by the authorities, in charge of the matter, to properly constituted hospitals, and public institutions. The bill has been passed in the Assembly, and is in the Committee on Public Health in the Senate, and will be reported favorably and probably passed.

Pr. A. 1184, regulating the practice of midwifery, by preventing after January 1, 1917, any person other than a physician, practicing midwifery, unless licensed by the State Commissioner of Health, and registered by the local registrar. This bill is in the Committee on Rules, and will probably not be reported, although it should be, inasmuch as it is an extremely important measure for the protection of the poor.

Pr. S. 193 and Pr. A. 979, protecting the New York City watershed.

Pr. S. 219, Pr. A. 458, and Pr. A. 135, which permits choice of physician by the working man who is injured and who is insured under the Workmen's Compensation Act. These bills are in the Judiciary Committee in the Senate and the Committee on Rules of the Assembly, and although they are necessary and very worthy bills, will probably not be reported.

The bills opposed:—

Pr. A. 955, which regulates the practice of Osteotherapy (so called). This bill is in the Committee on Rules in the Assembly, not having been reported by the Committee on Judiciary, and in all probability will not be reported from Rules.

Pr. S. 955, Pr. A. 1545, regulating the practice of Chiropractic, is in the Committee on Judiciary of the Senate, and in the Committee on Rules of the Assembly. The fate of this bill is still dubious, although great effort will be made to have the bill reported. The probabilities of its passing are remote.

Pr. S. 258, Pr. A. 367, Pr. S. 258, and Pr. A. 368, bills prohibiting the practice of Vivisection in the Public Schools, and providing for the supervision of vivisection by the Regents, in professional schools and laboratories, are in the Committee on Public Health in the Senate, and Committee on Rules in the Assembly. They will not be reported.

Pr. S. 1186, and Pr. A. 1411, making certain changes in the law relating to habit forming drugs, especially as concerning physicians records, by requiring that a record be kept of the name and address of each person for whom a drug is *prescribed*. Has been reported favorably by the Committee on Public Health in the Assembly, and placed on the order of third reading, and is still in the Committee on Public Health in the Senate and will probably not be passed in the Senate.

Pr. S. 1341, Pr. A. 1018, making most drastic changes in the present law, regulating the use of habit forming drugs. These bills place a very large and unnecessary burden upon the profession, and at least one paragraph in the bill seems to favor certain sanitariums for the care of drug addicts. It is in the Committee on Rules of the Assembly and in the Committee on Public Health in the Senate, and is unlikely to pass.

Pr. S. 66 and Pr. A. 17, which makes it a felony to have illegal possession of a habit-forming drug, or for any violation of the law, regarding prescribing or dispensing such drugs. The law should stand as it is at present, so that violation is a misdemeanor only for the first offence, except in the case of its being dispensed to a child under the age of sixteen, making all second offenses felonies. The bill is in the Committee on Rules of the Assembly and the Committee on Public Health in the Senate, and will probably not be reported.

Pr. A. 110, Pr. A. 13, and Pr. S. 79, which permits members of a local Board of Health to fix the compensation of local health officers, without regard to the special provisions of the Public Health Law, which prohibits any local Board of Health fixing the salary of the local health officers at the total sum per annum, which will be less than ten cents per capita of the population in the health district. These bills are in the Committee on Rules of the Assembly and the Committee on Public Health of the Senate, and will probably not be reported.

Pr. A. 1222, requiring examination and licensure of those who are to practice massage and medical gymnastics; is in the Committee on Rules of the Assembly and will probably not be reported.

Pr. A. 440, and Pr. A. 337, which changes the present Public Health Law, in relation to the practice of medicine, and Pr. A. 1400, which constitutes a standard of unprofessional conduct for physicians and provides a penalty, are all in the Committee on Rules of the Assembly, and will probably not be reported.

Pr. S. 1027 and Pr. A. 1637, providing for the annual registration of physicians at the sum of $2 each, per annum, and provides penalties for the infringement of this law, as well as putting all prosecutions for offenses against the present medical practice act, in the hands of the Attorney General; is in the Committee on Rules in the Assembly, and the Committee on Public Health in the Senate. This bill was introduced by the State Osteopathic Society, and is similar to the bill which was introduced, and passed at this session, providing annual registration for dentists, and to the bill which was passed some five years ago, providing annual registration for veterinarians, and will probably not be reported.

Hearings were held at which your Committee appeared on the bill licensing and regulating the practice of Osteotherapy; upon all of the bills making changes in the present law relating to the use and administration of habit-forming drugs; upon all of the bills, relating to the changes of the medical practice act; upon the bill relating to the annual registration of the physicians and defining and penalizing unprofessional conduct; upon the bill relating to the institution of a system of health insurance, at which hearing your Committee opposed the present enactment of this law, and asked for the appointment of a Commission to investigate the whole question of Health Insurance. In conformity with this request, a bill has been introduced by Mr. Mills, who introduced the original Health Insurance Bill, Int. S. 1263, Pr. S. 1462, to establish a Commission to investigate sickness in the State of New York, and making provision therefor. Upon all the bills introduced granting the employee, covered under the Workmen's Compensation Law, the right to choose his own physician.

Your Chairman would wish to express his most heartfelt appreciation to the other members of his Committee, whose active and untiring assistance has been of the utmost service, and whose loyalty has been of the greatest satisfaction. He would also extend his thanks to the Presidents and Chairmen of the Legislative Committees of the County Societies, throughout the State, for their assiduous aid and co-operation. He would respectfully direct the attention of your House to the importance of immediately taking action upon the recommendations of the Committee appointed by Dr. Grover Wende, at your last annual meeting, to consider the institution of a Legislative Commission, and to the recommendations of the Committee on Economics appointed by him.

The State is apparently embarking upon a career of State Sociology, the entering wedge of which was placed some five years ago by the recommendation of the Wainright Commission and the subsequent establishment of the Workmen's Compensation Law. The passage of the Widow's Pension Act, at the last session of the Legislature, was a step further along the road. The latest progress along this line is shown in the attempted introduction this year of a system requiring a compulsory insurance against sickness, which policy, so far as your Chairman can determine, embodied the main provisions of the Lloyd George Sick Insurance Act, of England, which, as you may remember, caused a great deal of righteous discontent in the medical profession for a considerable time before the Act was operative.

The Commission which will be appointed under the Mills Insurance Bill will undoubtedly be favorable to the whole question, and it seems imperative that your House at this session make some arrangement for the concerted attitude of the profession either for or against the whole question of Health Insurance, and for the appointment of a Committee with power to appear before the Commission instituted under the Mills Bill, Int. S. 1263 and Pr. S. 1462, that the profession may not be exploited by the various societies which are carrying on the work of compulsory insurance, and that they may avoid the injury visited upon the profession by similar acts in Germany, Austria and England.

Your Chairman would recommend that in accordance with the Constitution of this Society, Art. 8, Secs. 1-2, a referendum upon this question of Health Insurance be taken.

All of which is respectfully submitted.

James F. Rooney, *Chairman.*
James N. Vander Veer,
Samuel J. Kopetzky.

April 1, 1916.

REPORT OF THE COMMITTEE ON SCIENTIFIC WORK.

To the House of Delegates:

The Committee on Scientific Work beg to report that it has held during the past year two meetings, and that the program for the coming Annual Meeting in Saratoga Springs is well advanced and promises to be one of exceptional interest.

Respectfully submitted,

Thomas J. Harris,
Chairman.

April 1, 1916.

REPORT OF COMMITTEE ON ARRANGEMENTS.

To the House of Delegates:

The Chairman of the Committee on Arrangements hereby presents a preliminary and partial report. The United States Hotel, situated corner of Division Street and Broadway, Saratoga Springs, three minutes walk from the Delaware and Hudson Railroad Station, has been chosen as headquarters for those in attendance upon the annual meeting of the Medical Society of the State of New York.

The delegates will assemble at 8 o'clock P. M., Monday, May 15, 1916, in the auditorium of the Casino, which is situated in the City Park, two blocks from the United States Hotel, and directly across Broadway from the Grand Union Hotel. The opening meeting at 11 A. M., Tuesday, May 16th, as well as the general meeting at 8.30 P. M. of the same day, will be held in the Casino auditorium. At the latter meeting His Excellency Charles S. Whitman, Governor of the State of New York, will be among the speakers. Following this meeting a reception will be given to the Governor, the retiring President and the President-elect and their ladies, in the large room adjoining the auditorium in the Casino. There will be orchestral music during this reception.

The Section on Medicine will meet in the Casino auditorium; the Section on Surgery, in the large room adjoining the auditorium in the Casino; the Section on Obstetrics and Gynecology, in the reading room of the Casino; the Section on Pediatrics, in a room on the second floor of the Casino building; the Section on Eye, Ear, Nose and Throat, in the Bethesda Parish House, which is on Washington Street, near Broadway; the Section on Public Health, Hygiene and Sanitation, in the Stock Room of the United States Hotel.

On Wednesday, May 17th, at 8.30 P. M., a smoker will be given in the Casino auditorium, the entertainment consisting of solos by Mr. Rome N. Fenton, tenor; and an illustrated lecture, entitled "A Hunting Trip to Alaska, Siberia and the Pacific Arctic," by Dr. Arthur W. Elting, of Albany, who has very kindly consented to deliver this lecture to his medical brethren. It will be illustrated with colored lantern slides. Our sub-committee is arranging entertainments for women, consisting of an auto trip to Lake Luzerne and Lake George; a bridge party; and an afternoon reception and tea.

A full list of hotels and guest houses will be published in the program, which will be distributed to all members, information concerning location and rates charged being stated in each case. Special arrangements will be made for delegates and other physicians and their guests, coming from the west, whereby they will transfer to trolley cars at Schenectady to go direct to Saratoga Springs, thereby avoiding the necessity of going to Albany and returning on an almost parallel line. The Committee is assured of ample room for all attending the meeting, so that reservation for space need not be made before May 1st, if at all.

Following the wise decision of the Council, there will be no exhibits, either commercial or scientific, this year.

Albert Warren Ferris,
Chairman.

April 1, 1916.

REPORT OF THE COMMITTEE ON MEDICAL RESEARCH.

To the House of Delegates:

The Committee on Medical Research begs to report that during the season of 1915 the following bills to regulate animal experimentation were introduced in the Legislature:

By Mr. Boylan, in the Senate, "An Act to Amend the Education Law, in Relation to Experimentation upon living animals in the common schools of the State."

By Mr. Boylan, in the Senate, "An Act to prevent cruelty by conferring upon the Board of Regents of the University of the State of New York the power of supervision of experiments on living animals."

By Mr. Lawson, in the Senate, "An Act to create a commission to investigate and report upon the condition of the practice of human and animal experimentation in this State and to recommend such changes as may be necessary in the laws to prevent useless cruelty to human beings or animals, and to protect children and other inmates of our charitable institutions from abuse and the invasion of their personal rights through unnecessary experimentation upon them without their consent."

By Mr. Kerrigan, in the Assembly, "An Act to amend the Education Law, in relation to experimentation upon living animals in the common schools of the State."

By Mr. Kerrigan, in the Assembly, "An Act to prevent cruelty by conferring upon the Board of Regents of the University of the State of New York the power of supervision of experiments on living animals."

By Mr. Flamman, in the Assembly, "An Act to create a commission to investigate the practice of medical and surgical experimentation on persons and animals, and making an appropriation therefor."

The three Senate bills were referred to the Committee on Judiciary of the Senate; the two Assembly bills by Mr. Kerrigan were referred to the Committee on Public Education and the one by Mr. Flamman to the Committee on Ways and Means of the Assembly. None of them were reported out of committee.

During the season of 1916 Mr. Boylan introduced in the Senate the following bills, which are similar to those introduced in 1915:

To amend the Education Law, in relation to experimentation upon living animals in the common schools of the State; and

To prevent cruelty by conferring upon the Board of Regents of the University of the State of New York the power of supervision of experiments upon living animals.

The same bills were introduced in the Assembly by Mr. Mahony.

A hearing was held on the Senate bills before the Committee on Judiciary. They have not, up to the present time, been reported out of committee.

The Assembly bills were referred to the Committee on Public Education and no action has been taken upon them.

Respectfully submitted,

Frank Van Fleet,
April 1, 1916. *Chairman.*

REPORT OF THE COMMITTEE ON STATE LEGISLATION.

To the House of Delegates:

Your Committee to which was referred the recommendations of President Wende and Secretary Townsend at the annual meeting of this Society in 1915 begs leave to report that the recommendations contained therein be adopted in the following modified form:

1. That a State Council on Legislation be created, which shall act in an advisory capacity to the State Committee on Legislation, and which shall consist of the Chairman of the State Committee on Legislation as presiding officer, and the Secretary of each County Medical Society.

2. That an efficient capable man be employed to act as Secretary to the State Committee and the State Council on Legislation. The functions of this Secretary to be three-fold:

(*a*) To carefully prepare clear and concise digests of all proposed medical legislation and distribute it to the State Committee on Legislation and to the County Societies through their respective County Secretaries;

(*b*) To attend sittings of the Legislature in order to keep the State Committee on Legislation and the State Council on Legislation informed of all proposed medical legislation;

(*c*) To encourage the membership through the local County Secretaries to meet and discuss with their local representatives in the Legislature all questions of medical legislation.

All of which is respectfully submitted.

FRANKLIN C. GRAM,
Chairman.

April 1, 1916.

REPORT OF THE COMMITTEE ON CONSTITUTIONAL CONVENTION.

To the House of Delegates:

The Committee on Constitutional Convention would respectfully report that its efforts put forth in the securing of a recognition of a State Department of Health in the proposed new Constitution, and the preventing of unfavorable amendments affecting the interests of the medical profession of the State of New York, were highly successful, as will appear in referring to the text of the new Constitution.

Although this Constitution failed of adoption by the voters, the representations made and the arguments used by your Committee, seemed to impress many of the delegates, and has tended to emphasize and dignify the claims of the medical profession of this State for recognition as a definite and important feature of the State Government.

In view of the many suggestions for legislative amendments to the present Constitution, it is the opinion of the Chairman of this Committee that this Society in some way should keep in touch with such legislation through some designated committee or agency of this body.

Respectfully submitted,

J. B. RANSOM, M.D.,
Chairman.
CHARLES STOVER, M.D.,
Secretary.

April 1, 1916.

REPORT OF THE COMMITTEE TO CONSIDER WHAT CONSTITUTES ELIGIBILITY TO MEMBERSHIP.

To the House of Delegates:

The Committee appointed by President Wende to prepare an exact and clear definition of what shall constitute eligibility to membership in the Medical Society of the State of New York, beg leave to present the following as an amendment to Chapter X of the By-Laws, Section 3: "All legally qualified graduates in medicine, licensed to practice in the State of New York in conformity with the law and the requirements of the Board of Regents, are eligible to membership, except those admitted by special enactment of the Legislature, with evasion of the educational requirements either preliminary or professional."

Present Section 3 to become Section 4.
Present Section 4 to become Section 5.
Present Section 5 to become Section 6.
Present Section 6 to become Section 7.
Present Section 7 to become Section 8.
Present Section 8 to become Section 9.
Present Section 9 to become Section 10.

Respectfully submitted,

ALEXANDER LYLE,
SYLVESTER J. MCNAMARA,
ARTHUR G. BENNETT.

April 1, 1916.

REPORT OF THE COMMITTEE ON MIDWIVES.

To the House of Delegates:

The Committee on Midwives desire to report progress in the work of investigation of the subject in hand during the year. A fuller report will be ready for the 110th Annual Meeting.

Respectfully submitted,

JOHN VAN DOREN YOUNG,
Chairman.

April 1, 1916.

REPORT OF THE COUNSEL.

To Dr. W. Stanton Gleason, as President, and to The Council and House of Delegates of the Medical Society of the State of New York:

GENTLEMEN:

I have the honor to transmit to you herewith my report as the legal representative of the Medical Society of the State of New York, for the year 1915:

During this year less suits have been begun against members of the State Society than during the two preceding years, and if that indicates anything, it is that the lawyers bringing these actions are meeting with discouraging results.

Two actions have been lost during the year. Both are actions of special interest. I am convinced that one of the actions was lost because of two influences—one, the untruthful testimony of witnesses, and the other, the lack of interest of the defendant himself in the outcome of the case. This case has not been appealed, and I am reliably informed that the defendant has filed a petition in bankruptcy, and no doubt will eventually cancel his judgment.

The other case was one of more than ordinary interest. The plaintiff was represented by the attorney for a railroad company. They called in an expert to prosecute the case who is also a physician, and connected with the railroad, and the doctor who was called upon to swear the case through to the jury proved to be no friend of the defendant, and also connected with the railroad. The verdict was comparatively small, and an appeal was taken. The appeal to the Appellate Division resulted in an affirmance of the judgment, with the exception of one of the justices, who decided in favor of the doctor. An appeal has been taken to the Court of Appeals, and while it may take some months, if not years to reach it in the Court of Appeals, it will be a case of gravest importance to the physicians and surgeons of this State who are engaged in surgery.

It may not be improper in this report to add that the question involved in this case was twofold. The doctor was operating upon a double pyosalpinx. Incident to his operation he instructed the nurse in the hospital which had been selected by the patient, to place some gauze in her rectum for the purpose of outlining the rectum. When he had removed to another part of the abdomen for operation he told the nurse to remove the gauze from plaintiff's rectum. Secondarily, the question arose as to whether or not the leaving of this piece of gauze could have caused a fistula which, it was testified to, supervened.

During the year forty-four applications for defence were received, representing forty-four different physicians. Some of these cases represented more than one action, because husband and wife both sued in several instances, although involving the same question—on the one hand the husband's action for loss of service, and on the other hand the wife's action for the personal injury.

It might be proper to add that insurance companies have called me into consultation and to assist in the trial of cases through the earnest solicitation of the defendant himself. It is very hard to refuse a member in good standing in the State Society in such a predicament, and I have uniformly complied with the requests of the various doctor defendants.

The knowledge that the State Society is conducting this defence has been, I believe, satisfactorily promulgated throughout the State. Wherever I go the efforts of the State Society are known, and this knowledge has discouraged hundreds of litigants. This defence is serving its purpose.

During the year a very important appeal has been referred to Counsel for the State Society, and has been conducted by him, and during this time an action was brought not only involving a County Society, but the State Society as well; both were sued in the Supreme Court. Outside of my retainer I appeared for and represented the State Society in this action, which was tried in Utica before Mr. Justice Ross, and while the final determination was not reached until 1916, yet it will be of interest for members of the Society to know that the complaint against the State Society was dismissed with costs against the plaintiff in that action.

While I have been particularly careful to write personal letters to various distinguished members of the profession in various counties throughout the State, thanking them on my own behalf and on behalf of the Medical Society of the State of New York, it is only proper that I should now publicly express my gratitude to those gentlemen who have from time to time gratuitously and by self-sacrificing effort come forward to give aid to their brother practitioners who are sued. Without their support, earnest effort, co-operation and valuable counsel, my efforts would be futile.

The following is a list of cases begun during 1915:

1. This was an action brought against a very well known and greatly esteemed obstetrician, who was sued for not discovering pieces of a glass tube which had been broken off in a patient's vagina following childbirth, by a nurse in one of the hospitals. This case was defended by the attorney for one of the insurance companies, but at the last moment the doctor called in your counsel who declined to take the responsibility of the action, but did all he could to assist the attorney in trying his case. The action resulted in a verdict against the defendant. An appeal was taken by the insurance company's attorney and the verdict set aside. It appeared to your counsel that this was a case where no verdict should have been secured under any circumstances, and it was regrettable, but the verdict has been set aside.

2. This action was begun by a woman who claimed that in extracting a tooth from her upper jaw, her jaw, throat and neck became diseased and she was required to be taken to a hospital for an operation on her jaw and head, which resulted in a permanent disfiguring scar, and that she became blood-poisoned.

3. This is an action brought by a man who claimed that the defendant carelessly, unskillfully and negligently burned his face in the use of X-rays, and that he will be required to suffer for the balance of his life great damage by way of a scar and marks as a result of the X-ray burns. This case has some amusing features which cannot be discussed at this time.

4. This action was begun by the doctor to compel the payment of his bill. The patient set up a counterclaim, charging under several counts or causes of action and as counterclaims against the bill, that the doctor had been negligent in treating her and that he had been guilty of a constructive assault in not per-

forming the operation for which he was employed. The operation was one on the abdomen of the plaintiff. The doctor found appendicitis and bowel obstruction, and cured the patient. The case resulted in a verdict in favor of the doctor, although his bill was not paid in full, but the malpractice claim was disposed of.

5. No action was actually ever begun in this particular case. The question involved was one of treatment for flat feet. It appears that the doctor was extremely cautious and careful in handling the deformities which the patient had, and the criticism followed the presentation of the doctor's bill.

6. This case was one brought by a woman and her husband involving the question of whether or not she had been properly treated in a female sanitarium which afforded particular care to women in confinement. This patient had an unfortunate presentation of the child, and it became necessary for the defendant to employ a surgeon. The surgeon was employed with the acquiescence and consent of the husband and of the wife. The action was brought because of unnecessary pain and suffering endured by the patient. This was defended by an insurance company, but the defendant made application for defence and there remained nothing for your counsel to do but to assist. He examined the medical experts. The case was opened, tried and summed up by the attorney for the insurance company, and resulted in a verdict against the doctor. A motion was immediately made to set aside the verdict on the ground of errors of the trial Court, and the Judge who tried the case himself set the verdict aside.

7. This application for defence was received in February of last year, and it appears that the case was in the hands of an insurance company, having been brought years ago, and was about to be tried. The amount involved was $100,000, one action having been brought by the husband and one by the wife. I was to act simply as the counsel to try the case, but when reached for trial I am reliably informed that it was settled for $2,000. In my judgment this was a very serious mistake. However, it was done without my consent, by the insurance company, and only emphasizes the importance of stopping these insurance policies, because this particular doctor, for instance, should he be sued again, would be a vulnerable subject of attack and no doubt no insurance company would take him again, so that he would be in a very serious financial predicament for the rest of his professional career.

8. This case had had quite an interesting history, in that an action was first brought by the doctor in one county, an action was brought against him in another county, and the doctor was represented by an attorney in the original action and I represented him in the malpractice action. Finally the actions were consolidated, and through the efforts of your counsel, united in the County where the doctor resides and where he wanted his case tried. It will be tried some time during 1916. The interesting feature of the case was that typhoid fever supervened after a serious surgical operation. Indeed, the patient came to the hospital where she was operated upon, suffering from typhoid fever.

9. This action involved a fracture of the lower leg, midway between the ankle and the knee. The plaintiff complains because the fractured fragments were not held in proper apposition and alignment nor properly bandaged, with the result that as stated in the complaint, there appeared an "anterior flex" approximating one-sixth of a right angle. This case will be tried early in 1916, and should not be discussed in this report.

10. This application represents two cases, brought by husband and wife against one of the large institutions of the State and against one of the members of the State Society. Your counsel appeared for and represented the member of the State Society. This action was brought in the United States Court and contained many allegations which were so numerous that your counsel filed a demurrer, with the result that a new complaint had to be formulated. Before the new complaint was served the action was, by consent of your counsel, discontinued as against his client. It is, however, being continued against others.

11. This action is one wherein it is claimed that the doctor was careless and negligent in the application of splints applied to a broken leg. This case cannot now be discussed because there are some elements of defence in this action that are extremely important and therefore should not be referred to now.

12. While I do not care to say anything further than I have written to the defendant in this action, it is one of those cases where the doctor made a very serious blunder in settling his case because there was not the slightest evidence of negligence or carelessness on his part. It has placed him in a very serious position in future. The case involved a fracture of the nose, and it appeared by the complaint that the doctor took care of this patient as the physician for some insurance company; that after being treated for about seven weeks it was contended by the patient that the doctor had never reduced the fracture of his nose, and that the cuts and lacerations which occurred about the plaintiff's eye were never closed properly, with the result that he is permanently maimed and disfigured. The doctor settled this case for a small amount, which he should not have done.

13. So far as the defendant represented by me is concerned, no action was ever brought, but it appears that in an emergency two different doctors, both members of the State Medical Society, were threatened with an action. One of them was called in to take care of a man who, while dancing in one of the hotels, slipped and fell and received some injury to his elbow and forearm. The doctor who first attended him, not being a surgeon, referred him to the second member of the Society, whom plaintiff attempted to hold responsible. The claim is almost an absurd one. As the case has not been finally disposed of, greater detail should not be indulged in at this time.

14. This action resulted from a doctor, a genito-urinary specialist, undertaking to secure payment of his bill for treatment of a case of gonorrhoea and incidental complications. Plaintiff set up a counterclaim, and the case finally was reached for trial and disposed of, with the result that the doctor received the full amount of his bill and the counterclaim was abandoned.

15. This action was begun by the same plaintiff against another physician, and resulted also from attempting to collect a bill under the same circumstances. Both this and the case immediately preceding it have been finally disposed of, and resulted in a judgment in favor of the doctor.

16. This action was begun by the doctor attempting to collect his bill for treating the patient who was thrown from an automobile and broke his leg between the knee and hip. There is also involved a question of constructive assault in this case, and the claim as set forth by the patient, is to the effect that he was taken to a hospital without his consent and against his protest, that the doctor "assumed" to exercise his professional skill in setting the broken leg, that the doctor allowed the broken fragments to over-ride, and that as a result his leg became inflamed, diseased, weak and impaired as well as shortened. In addition the patient says that he was required to have other physicians and surgeons "disjoin" the bone and reset it. As this case has not been tried, further discussion cannot be had.

17. This number represents the same action as No. 13. In the one instance it represents the hospital doctor, and in the other, the surgeon.

18. The alleged cause of action in this complaint is the removal of a diseased nerve from the jaw of the plaintiff, from which she had been suffering for some time. Her contention is that the nerve was not diseased. Defendant was called upon to operate upon the left lower jaw of the patient, and she claims that it

was done so negligently and improperly that the jaw and muscles in and about the mouth and face became diseased. This action was begun in the county of Oswego, but was removed to the county of Onondaga, where the doctor lives.

19. This action was begun by the service of a summons in the City Court of the City of New York. Immediately after the application had been made for defence, a demand was made by your counsel for the service of a complaint in the action. None was ever served, and unless a complaint is served by June a motion will be made to dismiss this complaint. I am not informed what the cause of action involves.

20. This is an action in which it is claimed the doctor caused the death of the patient, a woman. It is contended that the doctor was called to treat the patient, and that while she was under the influence of an anaesthetic he deserted her and refused to render any further services to her, and that she subsequently died.

21. It is charged in this action that the doctor, in consideration of the sum of fifty cents paid to him, agreed to take care of the plaintiff and give her treatment and medicines, but that the prescriptions he gave her were not only valueless, but on the contrary, injured her. This case was the most absurd one that I have ever known to be brought, and upon consent it was discontinued and finally disposed of.

22. It is contended by the plaintiff, a woman, that having received an injury to her wrist, she was improperly treated by the doctor; that he was so negligent in the care and treatment of her wrist that it became necessary to have an operation performed to rectify the disfigurement caused by his negligence. It appears that some other physician had treated her before the defendant took charge of her, and that there was also an injury to the elbow. As this case has not been tried, further discussion of it cannot be had a this time.

23. A summons was served in this action, and it appears that the doctor was defended by the U. S. Casualty Co., an insurance organization issuing policies to doctors. I appeared in this case and served a notice of appearance, and at that time received a letter from some attorneys asking me whether or not the State Society guarantees against loss. I immediately advised them that of course it did not, and I was asked to allow them to be substituted as attorneys of record, and heard nothing more about the case. I do not know what the case involved, because my efforts ceased the moment I sent the consent to substitution to the insurance company's attorneys.

24. This action was begun after the doctor attempted to collect her bill. The patient in this case was a woman suffering with bronchial asthma, and the whole criticism seems to be one of treatment. An action has never been brought although a lawyer wrote a letter in April, 1915, asking that the matter be adjusted. No heed was paid to his importunities.

25. This action involved an injury to the shoulder of the patient. Before the doctor applied for malpractice defence he had employed lawyers in his own vicinity, and your counsel has been called in as counsel in the case to try the action when the same is reached. It is claimed that the result to the shoulder was caused solely through the ignorance of the doctor and his lack of sufficient knowledge to warrant him in treating the case at all. This action will probably be reached for trial during 1916.

26. This action was in some respects a very peculiar one. A young man, twenty-five years of age, was kicked by a horse. The defendant in the action was attending another case nearby and was called in the emergency to stop a serious hemorrhage as a result of this injury. As he was completing his effort the family doctor came and the defendant retired. The patient claimed that the bandages were torn off and thrown on the floor and the patient allowed unnecessarily to suffer from hemorrhage and shock. This case was tried and the Court directed a verdict in favor of the defendant. No damage was proven.

27. This action was begun by the administrator of the decedent who was admitted to one of the large hospitals and there operated upon for large tonsils. The gravamen of the complaint consists in a charge that the defendant doctor did not properly prepare the said patient for operation, and also in connection with his operation, that he permitted the patient to bleed to death. It will be some time before this action is reached for trial.

28. In this case the patient was injured in a street car accident by breaking the medicarpal bone of the little finger. An anaesthetic was administered and the bone set, and the same day the patient settled with the railroad. The next day it appears it was discovered that another finger had been fractured; an anaesthetic was administered and that fracture was set with the assistance of another surgeon. Later, being dissatisfied with the settlement, this physician was asked to state to the patient that he had improperly advised her in the case. This the doctor refused to do, and a suit was threatened. No action has been begun as yet.

29. This action has never been actually begun, although letters have been written by lawyers threatening to bring an action. The question involved is apparently some allegation of mistreatment connected with the opening of the frontal sinus over the right cheek. The case seems to be so absurd that I hardly think an action will ever be begun.

30. It appears in this case that the patient fell on the ice, striking his left knee, and was unable to use or even stand on the leg. On examination the doctor found that the leg could be moved, and that there was a slight movement in the upper third of the left tibia, without displacement. The patient claims that there was a bad result after the treatment, but it transpired that the patient paid no attention to the directions of the doctor, and even went so far as to take the leg out of the fracture box. This action will be tried, probably, in March, 1916.

31. This action involves an operation on a man's eye. He had had for many years impaired vision in both eyes, and the vision of one had been almost completely destroyed when he came to the defendant for operation. An application for examination of the doctor before trial was made, and an order was granted for that purpose. Your counsel moved to set the order aside, and the order was vacated by the same Justice who granted it.

32. The plaintiff in this case claimed that she had been suffering from a disease known as "psoriasis," "rash," or "skin eruption." The complaint alleges that the doctor prescribed a certain poisonous liquid containing arsenic, and that he did not properly label the bottle. She also alleges that she took more than was proper, and that she was made sick and suffered greatly. I doubt if the case will ever be brought to trial, but it cannot be discussed further now.

33. Plaintiff in this case charges that the defendant, who is a doctor of dental surgery as well as a doctor of medicine, was negligent in the extraction of a tooth, and that his carelessness and heedlessness resulted in a necrosis of the bone of the plaintiff's right jaw, and that by reason of this carelessness the patient has been made permanently sick, sore and disabled. This case cannot be discussed with any more detail now because it has not been tried.

34. The application in this case was one involving an alleged criminal act of the defendant, and although the doctor applied for defence it was not accorded him.

35. In this action the plaintiff claims that he was treated for about four months in the hospital, and that as a result of the careless and negligent acts of the doctor the patient developed bed sores which became progressive and ate away large areas of tissue on either of his hips, and wasted and destroyed the muscles, and that he has been caused a great deal of

pain and suffering unnecessarily. The answer of the defendant is that this patient had typhoid fever and that he saved the patient's life. The development of the bed sores was caused by the virulent nature of the disease which reduced him almost to a skeleton, and had it not been for the constant and persistent attention of the doctor the man would have died. As this case was about to be tried I received notice from plaintiff's attorney that he refused to go on with the case. The case has not yet been discontinued, but I have received no order of substitution of any other attorney. I believe the case has been terminated.

36. Suffering from neuritis and nervous breakdown, the patient in this case went to the country after she had resorted to massage and osteopathy. While in the country she fell from the door step and fractured her right wrist. An anaesthetic was given and splints were applied, and during the convalescence which was favorable and uninterrupted, she left the village where she was staying, against the authority of the doctor. There has been no action begun in this case, and after reading the doctor's statement I am convinced that the distinguished lawyer who wrote the letter to the doctor has no idea of bringing any action. It would be absurd for him to do so.

37. No summons or complaint has ever been served in this case, and so far as I know the only threat is from a firm of lawyers, written in September. I am convinced that no action will be brought because there is no semblance of responsibility in this case. It would appear that the patient came to a medical college for treatment, where it was discovered that the child had a severe re-action on the skin. The mother stated that she had been advised to apply alcohol which caused severe irritation. X-rays were applied.

38. Although the life of the plaintiff in this case was saved, and that she had the most careful treatment, she claims now that a clamp was left in an abdominal wound incident to an operation performed by the defendant in this case. The criticism is that the doctor failed to remove this clamp, and by reason thereof the patient was made sick, sore and disabled, and the wound refuse to heal. She claims that a short time afterward she went to another hospital and after an X-ray examination had been made, this clamp was discovered and removed. This case will doubtless be tried during 1916.

39. In this case two causes of action are asserted. One is that the patient never gave authority for the doctor to perform the operation which he did perform, and the other is that the operation was improperly done. The operation was one of auto-transplantation of bone, involving an operation on the radius of the patient's arm and the taking of a graft from her tibia and placing it in the arm to support the tissues about the place where the radius had been removed. It transpires that this case was most successful. The patient was saved the use of her arm and hand, and if the case is ever brought to trial will show a most unwarranted attack upon the doctor.

40. There are more different ailments charged in this complaint than in any other presented in this office. It appears that the defendant is not only a doctor of medicine but also a doctor of dental surgery; that he was employed by the plaintiff to extract a bad tooth, and that the defendant injected substances in the tissues about said tooth for the purpose of temporarily deadening the nerves, but the patient was not pleased with the result of the efforts of the doctor. This action is a most absurd one.

41. At the very end of the year an application for defence was presented in this case, but no pleadings were served upon me. It is evident that some threatening letters have been written or threatening remarks made to the doctor. A young woman suffering from Pott's fracture of the right ankle applied to the defendant for assistance in one of the hospitals in New York City, and was subsequently transferred to another hospital. A plaster cast was applied and the patient not being satisfied with the treatment she received, returned to the original hospital in the summer of 1914. An open operation was done. It appears that one of the hospitals and this defendant have policies in a casualty company, and have been sued, and that is the reason why no pleadings or other statement has been sent to me.

42. The patient in this action came to the doctor's office complaining of an injury to his left arm. He was sent to a hospital and had an X-ray skiagraph made of his arm and elbow. The picture of the elbow joint showed a fracture. Instead of obeying the doctor who directed him to call the next day, he waited for some time. Finally he got into the hands of another surgeon and an operation was performed. This case was managed by an insurance company and was settled without the slightest semblance of responsibility.

43. This case is based upon a claim that the doctor had not properly marked the prescription and that plaintiff had taken internally medicine which had been prescribed for external use. This action was brought in one of the inferior courts. A demand for a bill of particulars was served, but nothing has ever been done. It is claimed that plaintiff was poisoned by the drug.

44. Two cases are involved in this application,—one by the husband and one by the wife. The criticism against the doctor is based upon a claim that he did not treat the plaintiff's wife correctly incident to pregnancy. She alleges that the doctor advised her that she was not pregnant but was suffering from a tumor. She claims that the doctor with great force kneaded plaintiff's abdomen and probed her uterus, and that she suffered an abortion. This case cannot be discussed at this time as it has not been reached for trial.

During the year, seven cases brought during 1915, nine brought during 1914, ten brought during 1913, and three brought during 1912, were disposed of.

There is continuing and increasing application to your Counsel for advice on various subjects by members throughout the State. Opinions have been written and the law examined on various topics connected with the practice of medicine, demonstrating the great influence of this malpractice defence on collateral matters. The influence of the State Society is broadening in many directions. State Societies are organizing malpractice defence plans by various methods, either exactly as our defence is conducted in New York State, or upon some plan fundamentally like it with modifications which would make it more adaptable to a particular locality.

All of which is respectfully submitted.

James Taylor Lewis,
Counsel.

December 31, 1915.

REPORT OF THE COUNCILOR OF THE FIRST DISTRICT BRANCH.

To the House of Delegates:

In reporting upon the work done in this District Branch during the past year, I shall refrain from making special mention of the scientific work done by the individual County Societies, of which it is composed, except to state that I have been favorably impressed by the excellent scientific programs presented at their stated meetings, and the earnestness with which they were discussed, showing very conclusively that proper interest and thorough work is being done in the counties represented in this branch.

The Annual Meeting, which was the ninth in the history of the organization, was held at Nyack, N. Y., October 9, 1915, and the following program was presented:

President's address, "The Utilization of the Knowledge We Possess," J. E. Sadlier, M.D., Poughkeepsie.

"What Are the Indications for Removal of a Section for Microscopical Diagnosis Suspected Malignancy?" Samuel E. Getty, M.D., Yonkers.

Address by the President of the Medical Society of the State of New York, W. Stanton Gleason, M.D., Newburgh.

"Melanotic Sarcoma," J. P. Hoguet, M.D., New York.

Discussion opened by Parker Syms, M.D., New York.

"The Importance of Early Recognition of Arteriosclerosis." Louis F. Bishop, M.D., New York.

Discussion opened by Henry L. Winter, M.D., Cornwall.

"Relatively Low Blood Pressure," J. H. M. A. von Tiling, M.D., Poughkeepsie.

Discussion opened by Louis F. Bishop, M.D., New York.

"Hæmaturia; Its Clinical Significance," Edward C. Thompson, M.D., Newburgh.

Discussion opened by Edward C. Rushmore, M.D., Tuxedo.

"Practical Deductions to be Derived from Examinations of the Blood," Howard P. Carpenter, M.D., Poughkeepsie.

Discussion opened by Archibald W. Thomson, M.D., Poughkeepsie.

"Traumatic-Hysteria-Trauma Cause or Occasion," Daniel B. Hardenbergh, M.D., Middletown.

Discussion opened by Theodore Denton Mills, M.D., Middletown.

"Report Upon a Case of Surgery of the Liver," George A. Leitner, M.D., Piermont.

Discussion opened by Charles E. Townsend, M.D., Newburgh.

All of the papers were read and the discussion was excellent and spirited, so that the meeting was one long to be remembered for its scientific value. The attendance numbered about 150 of our physicians and whilst that is a relatively small number for a society that contains about 40 per cent of the membership of the Medical Society of the State of New York, it represented nevertheless an excellent attendance for this branch, and indicated a developing interest in the organization and a dissipation of that lethargy which has heretofore been a pronounced feature of some of our meetings.

I was impressed by the fact that our attendance was composed of the busy men of the district—the men who could least afford the time but who could not afford to miss a meeting of scientific value that might add to their store of knowledge and thereby make them better and more useful practitioners of medicine. It is a source of regret that more physicians do not avail themselves of the advantages to be derived from attendance at the District Branch Meetings.

The business portion of our Annual Meeting consisted mainly of adopting the new By-laws as presented at the meeting held in New York City, October 8, 1914. Our officers hold over for the ensuing year.

I have been impressed by the fact that Putnam County, located in this District, has no County Medical Society, which fact is due to the rather small number of physicians located in the county and also that the county is divided by a mountainous section which interferes with easy access to its various sections. An effort is under way to overcome this unfortunate condition by uniting the medical fraternity of Dutchess and Putnam counties into one large medical society, to be known as the Dutchess-Putnam Medical Society. We have started the work in connection with this project and in the next annual report I hope to tell you of its successful completion. This will give about twenty physicians practicing in Putnam County a recognition which they have not heretofore possessed.

J. E. Sadlier,
President.

April 1, 1916.

REPORT OF THE COUNCILOR OF THE SECOND DISTRICT BRANCH.

To the House of Delegates:

Having been honored by a re-election to this office, at the annual meeting of the branch, held at Mineola, November 27, 1914, it becomes my duty, at this time, to make a report to your honorable body. The year has been, comparatively, uneventful; but saddened, recently, by the tragic death of the long-time Secretary of the State Society, Dr. Wisner R. Townsend.

Owing to unavoidable conditions, I have been prevented from attending many meetings of the County Societies which form the Second District Branch. I was present, in February of last year, at a very interesting and profitable meeting of the Medical Society of the County of Kings. A very instructive paper, illustrated by lantern slides, was read by Dr. A. C. Howe, "Implantation of Cartilage and Vulcanite in the Nasal Septum," showing some of the startling resources of modern surgery.

A paper on "Acute Osteomyelitis," by Dr. J. P. Warbasse, also illustrated by lantern slides, sounded a warning to all physicians of the danger of deferring prompt surgical interference in these cases.

These papers were followed by a very interesting address by the Hon. George McAneny, President of the Board of Aldermen, of New York City, showing what a large factor the medical profession has become in the efforts of the city government for civic betterment.

The annual meeting of the Branch was held Monday evening, November 22, 1915, in the beautiful assembly room of the Medical Society of the County of Kings on Bedford Avenue. The attendance was fair but less than at Mineola the year previous. The new By-Laws, as recommended by the Council, were adopted, in consequence of which adoption the officers elected in 1914 held over until the next annual meeting in 1916. As the new By-Laws provides for a Second Vice-President, Dr. Frederick C. Holden, of Brooklyn, was elected to that office.

The President of the State Society. Dr. W. Stanton Gleason, of Newburgh, was represented at the meeting by the Second Vice-President, Dr. Henry L. Winter, of Cornwall, who urged greater loyalty to the county societies. Dr. William S. Gottheil, of New York, Editor of the Medical Economist, had expected to address the meeting; but important matters had come up which required his presence at the meeting of the New York County Society, held the same evening. The principal address was made by Dr. William S. Wadsworth, of Philadelphia, upon "The Duty of the Physician to the Community." The meeting closed with a brief address by the President, in which he urged the adoption of some plan for making the county societies more efficient and helpful.

The Councilor would express his appreciation of the courtesy and assistance which the officers of the State Society have uniformly given him, and trusts the coming year may bring abundant scientific and social prosperity to our profession.

Respectfully submitted,

James S. Cooley,
President.

April 1, 1916.

REPORT OF THE COUNCILOR OF THE THIRD DISTRICT BRANCH.

To the House of Delegates:

The Annual Meeting of the Third District Branch was held at Hudson on September 28, 1915.

Before starting the scientific program a clam bake was served by the Columbia County Medical Society in the Elks Club of Hudson. Ninety members were present.

Under the two year rule the same officers held over for another year.

It has not yet been decided where the next annual meeting will be held.

Respectfully submitted,

A. H. Traver,
President.

April 1, 1916.

REPORT OF THE COUNCILOR OF THE FOURTH DISTRICT BRANCH.

To the House of Delegates:

The Annual Meeting of the Fourth District Branch was held at Saranac Lake on October 12, 1915. The attendance was large and representative; the program was made up of papers, X-ray demonstrations, illustrated lectures, etc., furnished by the local and visiting gentlemen. The afternoon session was adjourned to the Ray Brook Sanitarium, where Dr. Garvin, the superintendent, gave an X-ray demonstration and lecture with cases, which was largely attended and greatly appreciated.

The papers, lectures and demonstrations throughout were of a high order, and were enthusiastically received and held the interest of the members to the very close of the session.

We were honored by the presence of both the President and Secretary of the State Society, who gave us most interesting and instructive addresses, intimately related to medical affairs and not unmixed with humor.

The Fourth District Branch was the guest of the Saranac Lake Medical Society, which spared no pains to make the meeting a successful and pleasant one, serving a delightful lunch at the Berkely House Grill, and affording every opportunity of visiting the Trudeau Laboratory, the Adirondack Sanitarium and other institutions as well as the beauties of this charming locality.

There were no officers to be elected. Amendments to the by-laws were carried.

In the evening lantern slides were exhibited in the Library Building by Dr. Albert Warren Ferris, representing the state reservation work and many beautiful views of Saratoga Springs and vicinity, which were pleasurably received by the audience.

In conclusion it may be said that as far as can be learned the several county societies making up the Fourth District Branch are in a healthy and growing condition.

Respectfully submitted,

J. B. Ransom,
President.

April 1, 1916.

REPORT OF THE COUNCILOR OF THE FIFTH DISTRICT BRANCH.

To the House of Delegates:

As President and Councilor of the Fifth District Branch I beg herewith to present my report of the conditions of the Fifth District Branch since the last annual meeting.

I have tried to make the required visit at a meeting of each county society in the branch, but have been able to visit only meetings of the counties of Jefferson, Oneida and Herkimer.

I attended a meeting of the Medical Society of the County of Jefferson in July, 1915, and though the meeting was poorly attended probably because it was a very rainy, stormy day, yet most excellent papers were presented and the society seemed to be in excellent condition.

In January I visited the Medical Society of the County of Oneida and the attendance was large and enthusiastic and a most excellent address was given by Dr. Burnam, of Baltimore, on Radium Therapy. The society is energetic and prosperous and the fraternal spirit was in evidence.

I attended most of the meetings of the Medical Society of the County of Herkimer, my own society, and must say that this society is in good wholesome condition and that the meetings are well attended and that many good papers are read before it. This society makes an effort to promote good fellowship in the profession and has found at all its meetings, that a light lunch promotes sociability and a formal banquet is held every two or three years with great benefit. I was not able to attend a meeting of either the Onondaga, Madison, Oswego or Lewis County Societies but from what I know of their members and spirit in general meetings I think that all of them are doing good work.

On October 6, 1915, we held the branch meeting in Little Falls, Herkimer County and we think we had an excellent and enjoyable meeting. There was an attendance of about 100 members and the papers were most excellent and profitable to those in attendance. A corrected list of papers is inserted showing the harmony and scope of the papers read.

MORNING SESSION, 10 A. M.

President's address, William D. Garlock, M.D., Little Falls.

"Cancer," LeRoy Brown, M.D., New York.

"Cancer," Harvey R. Gaylord, M.D., Buffalo.

Discussion of Cancer opened by Willis E. Ford, M.D., Utica.

"The Fundamental Causes and Principles of Treatment in Acute Membrane Inflammations, with Special Reference to Inflammations of Ear, Nose and Throat," Sargent F. Snow, M.D., Syracuse.

"Supracondylar Fracture of Elbow" with lantern slides, William L. Wallace, M.D., Syracuse.

"Anæsthesia" with Special Apparatus, Richard G. Kibby, M.D., Utica.

Symposium on General Infections:

"The Nature of General Infections," Wardner D. Ayer, M.D., Syracuse.

"The Treatment of General Infections," Andrew MacFarlane, M.D., Albany.

Discussion of General Infections:

"Causes and Results of Abnormal Blood Pressure," William D. Alsever, M.D., Syracuse.

Discussion on Blood Pressure opened by Arthur A. Gillette, M.D., Rome.

The new By-Laws presented at the meeting held in Syracuse, October 1, 1914, were adopted.

The following officers were elected for the following year: President, Dr. James F. McCaw, Watertown; First Vice-President, Dr. G. M. Lewis, Vernon; Second Vice-President, Dr. G. E. Clark, Skaneateles; Secretary, Dr. Horace Pritchard, Syracuse; Treasurer, Dr. Nelson O. Brooks, Oneida.

The members in attendance were entertained at luncheon as guests of the Medical Society of the County of Herkimer.

The meeting adjourned in time for all members to get a timely start for home, something always desirable in a meeting.

Respectfully submitted,

W. D. GARLOCK,
President.

April 1, 1916.

REPORT OF THE COUNCILOR OF THE SIXTH DISTRICT BRANCH.

To the House of Delegates:

The various County Societies comprising the Sixth District Branch are well organized, well officered, comprising a high percentage of the registered physicians of each county. Meetings in the majority of counties are held bi-annually and in other of the more active counties quarterly. All meetings show an attendance of 75 per cent of the members, with excellent programs, discussions, etc. The annual meeting of the Branch, held at Elmira, October 6th, was a very enthusiastic meeting, with a good attendance and a fine program, etc.

Respectfully submitted,

THOMAS F. MANLEY,
President.

April 1, 1916.

REPORT OF THE COUNCILOR OF THE SEVENTH DISTRICT BRANCH.

To the House of Delegates:

As called upon by the By-Laws of the Medical Society of the State of New York, I beg to submit herewith my report as Councilor for the year 1915.

During that period I visited all except one of the Counties in the Seventh District, being present at a meeting of the respective County Society on those occasions. The attendance at these meetings and the active participation of the members in the programs presented was gratifying. Before the expiration of my term of office as Councilor I expect to be able to attend a meeting of the Medical Society of the County of Monroe, the one County in the District not visited thus far.

The annual meeting of the Seventh District Branch was held at Geneva. The attendance was excellent and the program, although rather long, listened to with interest. The next annual meeting is to be held in Rochester.

Respectfully submitted,

William T. Shanahan,
President.

April 1, 1916.

REPORT OF THE COUNCILOR OF THE EIGHTH DISTRICT BRANCH.

To the House of Delegates:

As President of the Eighth District Branch I beg to report as follows:

The Annual Meeting of the Eighth District Branch was held at Olean on the 21st and 22d of September. This meeting was very well attended.

During the winter I visited the Medical Societies of the Counties of Niagara and Cattaraugas, at both of which I read papers, and also the County of Erie, of which I am a member.

I could not visit the other counties because their meetings were held in places which were so inaccessible from here that it would have taken me the better part of two days to do so, also, sometimes, the invitations did not reach me in time.

I was present at all the meetings of the Council, regular as well as special ones.

In conclusion I wish to thank the officers of the State Society and of the Eighth District Branch for their kind aid.

Carl G. Leo-Wolf,
April 1, 1916. *President.*

SECTION OFFICERS ELECTED MAY 17, 1916.

Medicine—John M. Swan, Chairman, Rochester; Arthur F. Chace, Secretary, New York City.

Surgery—Paul M. Pilcher, Chairman, Brooklyn; Thomas F. Laurie, Secretary, Auburn.

Obstetrics and Gynecology—Robert L. Dickinson, Chairman, Brooklyn; Ross G. Loop, Secretary, Elmira.

Eye, Ear, Nose and Throat—Thomas H. Farrell, Chairman, Utica; Arthur J. Bedell, Secretary, Albany.

Pediatrics—Edward J. Wynkoop, Chairman, Syracuse; T. Wood Clarke, Secretary, Utica.

Public Health, Hygiene and Sanitation—Linsly R. Williams, Chairman, Albany; William G. Bissell, Secretary, Buffalo.

HOUSE OF DELEGATES.

The regular annual meeting of the House of Delegates of the Medical Society of the State of New York was held in the Casino, Saratoga Springs, Monday, May 15, 1916, at 8:30 P. M. Dr. W. Stanton Gleason, Newburgh, President, in the chair; Dr. Floyd M. Crandall, New York, Secretary.

On the roll call the following delegates answered to their names: A. J. Bedell, T. W. Jenkins, J. N. Vander Veer, C. R. Bowen, C. S. Wilson, R. B. Morris, J. P. Creveling, V. W. Griswold, G. L. Hunter, R. S. Macdonald, L. E. Woolsey, R. W. Andrews, R. Giles, F. W. Barrows, A. G. Bennett, G. W. Wende, A. W. Hengerer, E. R. Hatch, J. V. Woodruff, C. G. Stockton, W. C. Wood, S. E. Page, J. L. Loutfian, R. F. Barber, E. H. Bartley, W F. Campbell, W. J. Cruikshank, J. W. Fleming, R. H. Fowler, E. A. Griffin, O. P. Humpstone, J. A. Lee, W. Linder, S. J. McNamara, J. O. Polak, C. E. Scofield, J. J. Sheehey, P. H. von Zierolshofen, F. R. Driesbach, N. O. Brooks, C. W. Hennington, O. E. Jones, W. T. Mulligan, C. C. Sutter, M. B. Palmer, W. S. Kilts, G. Barrie, J. B. Bissell, N. E. Brill, M. Keschner, W. L. Carr, D. S. Dougherty, L F. Frissell, E. E. Harris, H. Hays, C. Herrman, W. B. Hoag, C. S. Strong, S. J. Kopetzky, H. Lilienthal, S. Lloyd, A. Lyle, G. R. Satterlee, J. M. Mabbott, C. S. May, M. Packard, W. C. Phillips, E. F. Smith, E. E. Smith, F. E. Sondern, A. C. Prentice, H. S. Stark, F. Van Fleet, R. Waldo, B. H. Wells, O. S. Wightman, W. L. Culbert, J. C. Plain, C. W. Clendenan, C. H. Baldwin, E. D. Fuller, J. D. George, F. H. Flaherty, W. A. Groat, A. E. Larkin, A. W. Armstrong, R. E. Brodie, B. W. Dewar, J. H. Lyons, C. R. Kingsley, Jr., C. D. Kline, G. S. Towne, F. C. Reed, LeR. Becker, M. L. Bennett, R. Knight, W. H. Ross, F. Overton, L. Coville, M. Gage-Day, F. Keator, H. E. Clarke, J. F. Myers, E. I. Harrington, G. A. Peck, W. H. Purdy, E. G. Ramsdell.

The following officers and chairmen of committees were present: W. Stanton Gleason, President; Montgomery E. Leary, First Vice-President; Henry Lyle Winter, Second Vice-President; Floyd M. Crandall, Secretary; Alexander Lambert, Treasurer; Thomas J. Harris, Chairman, Committee on Scientific Work; Joshua M. Van Cott. Chairman, Committee on Public Health; James F. Rooney, Chairman, Committee on Legislation; Albert Warren Ferris, Chairman, Committee on Arrangements; Frank Van Fleet. Chairman, Committee on Medical Research; also the following Councilors: James E. Sadlier, First District Branch; Julius B. Ransom, Fourth District Branch; William T. Shanahan, Seventh District Branch.

The President: As there is a quorum present I declare the One Hundred and Tenth Annual Meeting of the Medical Society of the State of New York open for business.

This last year a sad affliction has fallen upon the Society in the loss of your Secretary, Dr. Wisner R. Townsend, and if you will rise, I will read this memorial in his behalf.

The delegates arose and President Gleason read the following.

In Memoriam.

Wisner R. Townsend, M.D.
Died March 12, 1916.
Secretary of the Medical Society of the State of New York for ten consecutive years.

Paramount to rules and orders, and rising high above business considerations is the tribute we owe to the memory of our late Secretary, the man and the physician, Dr. Wisner R. Townsend. Encomiums are meaningless to you, his friends, for it was the little unremembered acts of devotion that bound him to you. His winsome personality and adaptability placed him in close touch with our entire membership. Out of the depths of our appreciation we place this laurel wreath of affection to his memory in the archives of this Society.

The President: The next order is the report of the President. This report has been in your hands for several days and with your permission I will omit its reading, with the exception of the recommendation on the Intermediary Committee, which is as follows:

"Following a discussion by the Council relative to the control of Medical Ethics by the Board of Regents, a general recognition of the importance of the State Medical Society to cope with the situation under present existing circumstances was tacitly acknowledged. A committee was appointed at the January meeting of the council to act in an intermediary capacity and provide ways and means whereby the present existing circumstances might be remedied.

"There is a growing sentiment that an effort should be made to interest the Board of Regents to take steps to legally recognize the Medical Society of the State of New York. That the Board of Regents should propose that the interpretation of the principles of ethics of the medical profession should be legally given over to the Medical Society of the State of New York, and that the form of this legal recognition should include the right of the Medical Society of the State of New York to bring charges of unprofessional conduct or breach of ethics, to hear such charges and to fix the penalty. That it should be binding upon the Board of Regents to impose such penalty as the Medical Society of the State of New York should fix, without further hearing or hearings upon the matter.

"Such a plan, once in effect, would see the end of the kind of medical legislation which we now find it necessary to combat. It is confidently believed that this procedure can be brought about by proper efforts, properly directed."

Dr. Wendell C. Phillips: Moved that the report be accepted, and that the recommendation be referred to a committee appointed by the President to report to the House of Delegates at Tuesday morning's session. Seconded. After discussion by Drs. Henry S. Stark and Howard Lilienthal, the motion was carried.

The President: I will appoint this committee later in the evening. The next order is the report of the Council.

Dr. Frederic E. Sondern: I move that the report be accepted as printed. Seconded.

The President: The Secretary calls attention to certain amendments in the report of the Council which should be taken up later.

The Secretary: The amendments offered last year were scattered in different places. These amendments have been printed on the folder which is in your hands. A committee was appointed to carry out the recommendations of the President last year and their report was made to the Council and is embodied in the report of the Council. Several other amendments have been proposed, and it would seem wise that they be taken up under the head of New Business.

The President: The amendments should come up under the head of New Business.

A motion to that effect was moved, seconded and carried.

The President: The next order is the report of the Secretary.

Dr. Samuel J. Kopetzky: I move that it be accepted as printed. Seconded and carried.

The President: The next order is the report of the Treasurer.

Dr. Kopetzky: I move that it be accepted as printed. Seconded and carried.

The President: Reports of Standing Committees. The first is the report of the Committee on Scientific Work.

Dr. Nathan E. Brill: I move that it be accepted as printed. Seconded and carried.

The President: Report of the Committee on Legislation.

Dr. Phillips: The Committee on Legislation has some recommendations that require explanation before a motion is made to accept the report as read.

Dr. James F. Rooney: As Chairman of the Committee on Legislation I would like to say that, owing to the fact that the Mills Bill calling for the appointment of a commission to investigate the question of health insurance did not pass, I ask that that part of the report be omitted or expunged, and that the remainder of the report be accepted.

It was so moved, seconded, and carried.

Dr. Rooney: I would suggest that in view of the continuation of the investigation of the question of health insurance, that the committee appointed by the Council to investigate this matter in association with other bodies who have the subject under consideration, be continued.

The President: That would come under New Business.

Dr. Rooney: I will withhold it until we come to New Business.

The President: Report of the Committee on Public Health.

Dr. James W. Fleming: I move that the report be adopted as read, with the exception of the recommendations, and that they be referred to the proper committee. Seconded and carried.

The President: Report of the Committee on Arrangements.

Dr. Phillips: I move that it be accepted as printed with the thanks of the delegates to the committee for the arrangements they have made. Seconded and carried.

The President: Report of Committee on Medical Research.

Dr. Kopetzky: I move that it be accepted as printed. Seconded and carried.

The President: Report of special committees. The first is the Committee on Publication, appointed by the Council.

Dr. Phillips: I move that it be accepted as printed. Seconded and carried.

The President: Report of the Committee on Prize Essays.

Dr. Kopetzky: I move that it be accepted as printed. Seconded and carried.

The President: Report of Committee on Constitutional Convention. There is a suggestion in the last paragraph of this report.

Dr. Julius B. Ransom: I move that this whole matter be referred to the Committee on Legislation as suggested in the last paragraph. Seconded and carried.

The President: Report of the Committee to Consider What Constitutes Eligibility to Membership.

Dr. Phillips: I move that the report be accepted and the amendment to Chapter X of the By-Laws lie over until the next meeting. Seconded and carried.

The President: Report of the Committee on Midwives.

Dr. E. Eliot Harris: I move that the report be accepted as printed. Seconded and carried.

Dr. Frank Van Fleet: Dr. Young in his report says that the Committee on Midwives desires to report progress. I would move the re-appointment of this committee. Seconded and carried.

The President: Report of the Counsel.

Dr. Sondern: I move that it be accepted as printed, with thanks to Mr. Lewis for the work he has done. Seconded.

Mr. James Taylor Lewis: Before you vote on the motion made, I would like to say that I have been attending your annual meetings for ten years, and I take this opportunity to thank every member of the Medical Society of the State of New York and every county for their earnest co-operation in helping me, otherwise my task would be almost hopeless. On every occasion the members of this Society have come forward to assist and to co-operate with me, and I want to thank you all individually and collectively for what you have done. Carried.

The President: Report of Special Committee on Resolutions Passed by the Southern Medical Association, Dr. Alexander Lambert, Chairman.

Dr. Lambert presented the following letter from Dr. Rodman, President of the American Medical Association.

Dr. W. Stanton Gleason,
Newburgh, N. Y.

Dear Doctor:

I am enclosing a copy of the resolution which was enthusiastically passed by the Southern Medical Association at its meeting in Dallas, Texas, November 8-11, 1915. The resolution explains itself.

Would you be kind enough to mail a copy of this to every county and the other medical societies in your state for adoption, and ask those societies in localities in which members of Congress or the Senate reside to have this subject specially brought to their attention by individuals or committees who may have personal acquaintance with said legislators. Congress meets very shortly; there is but little time left, and any action on your part should be prompt. In those instances where the Congressmen have left home, the appeal should be made by mail. Will you also please ask the journal of your Society to make editorial comment on the matter in your next issue?

The measure to be proposed this winter looking to military preparedness makes no attempt to provide the soldiery with sufficient medical attention in a crisis, or in peace, for that matter. No class of men is better fitted to pass upon the medical officers necessary to treat and keep in health a given number of men as the doctors of the country are. In these days of preventive medicine, thorough knowledge of the etiology of disease, and the precise methods of care of the sick and wounded, armies have to be entrusted to specially trained medical men; otherwise casualties from avoidable diseases and lack of the proper treatment of the injured become very great. In the end, the state is apt to suffer unduly in the matter of pensions and the young and vigorous manhood of our country to be sacrificed. Hoping you will put your shoulder to the wheel, and that your efforts will bring good results, I am,

Sincerely your,
W. L. Rodman.

Dr. Lambert also presented the resolutions passed by the Southern Medical Association at Dallas, Texas, November 8-11, 1915, as follows:

Whereas, The President and the Honorable Secretary of War have announced in the public press that a scheme for the re-organization of the army will be presented to Congress at its coming session, which will materially increase the military establishment, and

Whereas, We recall the indignant protests and criticisms of the nation at the failure to provide adequately for the sick and wounded at the beginning of the Civil War and the Spanish-American War, and

Whereas, It is known that this failure was due to the lack of a sufficient number of medical officers, in the regular army and a means for increasing the medical establishment at the outbreak of war, and

Whereas, In spite of the lessons of the Spanish-American War which were fresh in mind in the re-organization of the army in 1901, the Medical Department was not properly increased and no provision made for its expansion in time of emergency, and

Whereas, To correct the defect in the 1901 Legislation, subsequent legislation was necessary in which the medical profession of the United States was called on to assist.

Therefore, be it *Resolved*, By the Southern Medical Association in session at Dallas, Texas, that the Secretary of War be petitioned to make adequate provision in the re-organization of the army about to be presented to Congress for a sufficient number of medical officers for the regular establishment, which provision should aggregate a proportion of medical officers of, at least, seventy-five hundredths of one per cent. of the enlisted strength of the army, or such number as the Surgeon-General of the army may deem necessary, and, be it further

Resolved, That the Secretary be petitioned to make provision in this re-organization for the expansion of the Medical Department at the beginning of war, by calling into the service in the Medical Reserve Corps, physicians from civil life who have been instructed in their special duties as medical officers in our summer camps, and otherwise as the War Department may see fit.

At the close of the report Dr. Harold Hays presented the following resolutions which were adopted:

Resolved, That it be the sense of the Medical Society of the State of New York, that, in view of necessity of adequate medical service for the United States Army, we endorse the recommendations of the Surgeon-General's Office to the effect that the ratio of medical officers shall be seven per thousand in peace time, to be increased ten per thousand in time of war. Be it further

Resolved, That a copy of this resolution be sent to the Surgeon-General and to the chairmen of the committees on Military Affairs of the House of Representatives and Senate.

Dr. Harold Hays: I desire to offer the following resolution and move its adoption:

Resolved, In view of the movement for national preparedness, that a committee be formed to interest the physicians of this state in this matter, particularly to encourage the younger men entering our hospitals to affiliate themselves with the Medical Reserve Corps, United States Army. Seconded.

It was moved to amend by including the navy as well as army. The amendment was seconded, accepted, and the original motion as amended was carried.

The President: Reports of the Councilors of the District Branches.

Dr. Sondern: I move that these reports of the councilors of the district branches be accepted as printed. Seconded and carried.

The President: The next order is the report of the Committee on Legislation.

Dr. Kopetzky: I move that this report be received and placed on file. Seconded and carried.

The President: Unfinished business. We now come to the consideration of amendments to the Constitution and By-Laws.

The Secretary: The first amendment is to amend Article V of the Constitution by adding after "Chairmen of standing committees" the words "The retiring President shall be a member of the Council for one year after his term of office expires."

The President: What will you do with this amendment?

Dr. Phillips: I move its adoption. Seconded and unanimously carried.

The Secretary: To amend Chapter III, Section 1, of the By-Laws, by striking out the words "in the evenings" and substituting the word "on." The section will then read, "The House of Delegates will meet annually on the day before the annual meeting of the society."

The President: What disposition do you wish to make of this amendment?

Dr. Brill: I move its adoption. Seconded and carried.

The Secretary: To amend Chapter VII, Section 2, of the By-Laws by adding "A Committee on Economics" and to insert Section 8 to read: The Committee on Economics shall consist of five members, that shall be on the watch for the appearance of any movement affecting the economic life of the membership, that shall at once begin an investigation when such a movement is discovered, and that shall report its findings and make recommendations at least annually to the House of Delegates.

Dr. E. Eliot Harris: I move its adoption. Seconded.

The Secretary: In order to carry out the recommendations made by the President last year, the Council appointed a sub-committee to put into shape the amendments that were proposed by him. The report will be found in the Annual Report.

Dr. E. Eliot Harris: I move the adoption of the substitute proposed by that committee, which reads as follows:

"The Committee on Medical Economics shall consist of five members including the Chairman. It shall investigate all matters affecting the economic status of physicians, and shall report annually to the House of Delegates such recommendations as may, in its judgment, seem proper." Seconded and carried.

Dr. Frank Van Fleet: I move that Chapter VII, Section 8, become Section 9. Seconded and carried.

The Secretary: Chapter VII, Section 2, it is proposed that the Committee on Medical Research shall hereafter be known as the Committee on Medical Education. I would call your attention to the following statement of the sub-committee: "The committee believes that the recommendation regarding the change of the name of the Committee on Medical Research should not be approved, because this committee was organized for a definite purpose, namely, to work for medical research and to oppose anti-vivisection legislation. In addition, the committee has funds which were left to it, and which might be jeopardized if the committee changes its name and functions."

Dr. Samuel Lloyd: I move that this amendment be not approved. Seconded and carried.

The Secretary: Chapter VII, Section 5, of the By-Laws, by striking out the word "three," and inserting the word "nine." The By-Law will then read: "The Committee on Public Health shall consist of nine members," etc.

Dr. Harris: I move its adoption. Seconded and carried.

Dr. Van Fleet: If you refer to the report of the committee appointed by the Council of the Society, in the fifth paragraph, there is a suggestion made regarding the Committee on Public Health, to add to Chapter VII, Section 5, at the end, after the words "Public Health," the words "and Medical Education," which would carry out the recommendation of Dr. Wende, except that in putting this work on the Committee on Medical Research, it would be placed on the Committee on Public Health. I move that this change be made, that the Committee on Public Health be the "Committee on Public Health and Medical Education." Seconded and carried.

The Secretary: In the Annual Reports, you will find a new amendment which must lie over, but it will have to be read. It is proposed by the Committee appointed by the Council and reads as follows: As the By-Laws relating to amendments are ambiguous, the following change is suggested:

For Chapter XII of the By-Laws substitute for Section 1, the following: "No article of these By-Laws shall be amended except by a majority vote of the delegates present and voting at any annual meeting, nor unless notice of the proposed amendment shall have been given at a previous annual meeting and shall have been published twice during the year in the official bulletin or journal of the society, or sent by order of the House of Delegates to each county society in affiliation with the society at least two months before the meeting at which final action shall be taken thereon."

After discussion by Drs. Harris, Phillips, Van Fleet and Mr. Lewis, the Secretary stated that all the amendments proposed at the last meeting were in the hands of the delegates longer than ten days before this meeting, but this one proposed amendment was not in their hands ten days before and would have to lie over until next year.

Dr. James F. Rooney: I move that the committee appointed by the Council at the December meeting to investigate in association with other bodies the subject of health insurance as concerns the medical profession be continued. Seconded.

Dr. Phillips: Would not that matter come into the province of the new Committee on Medical Economics? If so, it seems to me improper to continue a committee to do the work for which we have created a committee.

The President: That would seem to come within that scope.

Dr. Rooney: The committee appointed by the Council has had a conference with the body which has been most interested in advancing the cause of health insurance in the United States; the American Association for Labor Legislation. The committee appeared at the hearing of the Mills Bill and conferences have been held by other members of the committee with the American Association for Labor Legislation. Inasmuch as this committee has gone forward with part of the work, it seems to me that, at least for the present, it should be permitted to continue its labors in this regard.

Dr. Ralph Waldo: Questions of medical economics naturally come under the head of the Committee on Medical Economics. As this committee has been created by the House of Delegates it does not seem proper to appoint a special committee to do the work of the Standing Committee on Medical Economics which will cover the entire subject.

Dr. E. Eliot Harris: I endorse the statement of Dr. Waldo that inasmuch as the Committee on Economics has been created by the House of Delegates tonight, it will cover that question, and it will be a standing committee of this body. It will be the duty of this committee to bring in a report on that very question which Dr. Rooney's motion covers, I hope Dr. Rooney will not press his motion, but leave it to the new Standing Committee on Medical Economics.

Dr. Samuel J. Kopetzky: As a member of that committee and speaking for its Chairman, Dr. Rooney, we have no desire to press ourselves as a special committee to do work for which you have created a standing committee, but if Dr. Waldo can tell me how a standing committee should continue the work of a special committee, when that special committee has entered into arrangements and agreements of which the standing committee has no knowledge, I would like to have him do so. It will greatly confuse matters. This question of health insurance pending in the Legislature and pending before the two committees of your body needs delicate handling. The American Association of Labor Legislation in conference with the special committee appointed by the Council has reached certain agreements acceptable to the committee representing the State Society. When that bill is introduced into the Legislature next year the Committee on Legislation will naturally have a function to perform regarding it, namely, to oppose it or facilitate its passage. The interest of the medical profession I believe would be best served if this particular question were left out of this Committee on Medical Economics for the time being, unless provision be made for the matters agreed upon by this committee about to be created. There should be a co-relation between the Committee on Medical Economics and the Committee on Legislation. There ought to be adequate representation in all the executive departments of the health insurance bodies that will make health insurance effective and adequately protect the public as well as the treasury of the state, and that something be given in return for the money expended. These two fundamentals have been agreed upon in many of the details by the committee which this House of Delegates has appointed. Now, to hand this over to a committee that has just been originated or about to be originated is a great loss of time.

Dr. Nathan E. Brill: A simple solution of this question is to appoint on this Committee on Medical Economics, men actively engaged in the investigation of health insurance, in other words, the members of the Committee on Health Insurance.

After further discussion by Drs. Rooney and Brill, Dr. Daniel S. Dougherty moved as an amendment that this committee be re-appointed and instructed to work in connection with the new Committee on Medical Economics. Seconded.

The Chair put the amendment and declared it lost.

The motion of Dr. Rooney was voted upon and carried.

Dr. Frank Van Fleet: Before we enter upon the next order of business, I would like to ask, Mr. President, if you have appointed the Intermediary Committee?

The President: I appointed as members of this Intermediary Committee, Drs. Henry Lyle Winter, Alexander Lambert, Frank Van Fleet, James E. Sadlier, and Thomas H. McKee.

Dr. Nathan E. Brill: I would like to bring a matter before the House of Delegates and ask its endorsement. It relates to an act to amend Section 166, Article VIII, of the Public Health Law, being Chapter 45 of the Consolidated Law.

I bring this up in the interest of the public and in the interest of the profession which has always stood for the preserving of the high standard of medical education in this state. The object of the amendment is to secure to the public services of competent physicians and the amendment is to add to the Public Health Law a section which would require in addition to the ordinary standards for admission to examination, twelve months of satisfactory clinical work in a hospital having a daily average of not less than thirty patients, and having not less than fifty beds devoted to the treatment of medical and surgical diseases and registered by the regents as maintaining at the time satisfactory clinical and laboratory standards. I would like the House of Delegates to endorse this proposed legislation which will be introduced and come up for action at the next session of the Legislature.

Dr. Frank Van Fleet: I move that we, the House of Delegates, endorse this propored legislation. Seconded.

It was moved to amend that this whole matter be referred to the Committee on Public Health and Medical Education. Seconded.

After Mr. James Taylor Lewis, Counsel of the Society, pointed out the importance of not referring this matter to the committee, the amendment was withdrawn and the original motion of Dr. Van Fleet was put and carried.

Dr. E. Eliot Harris: On the folder mailed to the members of the House of Delegates, you will observe action on notice presented at the last meeting to change the time and place of the annual meeting in accordance with Article VI, Section 1, of the Constitution. I desire to introduce this resolution for next year and ask that action be taken upon it now.

Dr. Sondern: I move that this motion or resolution of Dr. Harris be adopted. Seconded and carried.

Dr. William J. Cruikshank presented certain views concerning medical legislation which were endorsed by the Medical Society of the County of Kings. He said that the work of medical legislation should not be left to the spasmodic efforts of the unorganized few, but should be the duty of the state medical society. The present method of dealing with legislative matters was inadequate, and the reason for this inadequacy lay in the almost complete indifference on the part of the individual physician to legislative questions which were of vital importance to the profession and community at large.

Dr. Cruikshank expressed the hope that a motion would be made by some one to change the By-Laws in order that the suggestions made by the Medical Society of the County of Kings regarding medical legislation might be carried into effect.

Dr. Ralph Waldo: I would move that committee of three be appointed by the Chair to formulate such changes as Dr. Cruikshank has referred to and report to-morrow morning to the House of Delegates. Seconded and carried.

Dr. Thomas W. Jenkins referred to certain matters connected with the Albany County Medical Society and moved that they be referred to the Council for consideration. Seconded and carried.

Dr. Frederic E. Sondern presented the following:

At the stated meeting of the Medical Society of the County of New York, March 27, 1916, the following resolution was presented:

Whereas, The Comitia Minora of the Medical Society of the County of New York having laid before this meeting the question of the invitation to the American Medical Association to meet in New York City in 1917, with its indorsement, and

Whereas, It is the sense of this meeting that this invitation be extended, therefore

Be it Resolved, That the Medical Society of the County of New York extend to the American Medical Association a most cordial invitation to hold its meeting of 1917 in New York City. Seconded.

An amendment was offered by Dr. Samuel J. Kopetzky that the Delegates of this Society to the Medical Society of the State of New York be so instructed. Seconded and accepted by the mover of the original motion.

An amendment was offered by Dr. John Van Doren Young that an invitation be extended to the Medical Society of the County of Kings, Queens, Nassau, Westchester, Bronx, Richmond and Orange, and to the New York Academy of Medicine to co-operate with this society. Seconded.

Amendment seconded by the mover of the original motion.

On vote the second amendment was unanimously carried.

On vote the first amendment was unanimously carried.

On vote the original motion was unanimously carried.

After reading this communication, Dr. Sondern moved that this be the sense of the House of Delegates and that the Delegates to the American Medical Association be so instructed. Seconded and carried.

Dr. James N. Vander Veer offered the following preamble and resolution:

Whereas, The attention of this body has been called to the fact that the Senator and Assemblyman from the district in which we are now assembled, namely, the Honorable George H. Whitney, Chairman of the Public Health Committee of the Senate, and Honorable Gilbert T. Seelye, Chairman of the Public Health Committee of the Assembly, have rendered splendid service in opposing the repeated attacks upon the integrity of the Medical Practice Act which were made during the recent session of the State Legislature; therefore, be it

Resolved, That the President and Secretary of the House of Delegates be and they are hereby instructed to express the thanks of the Medical Society of the State of New York to Senator Whitney and Assemblyman Seelye for the services they have so faithfully rendered not only to the profession of the state, but also to all of its citizens.

Dr. Kopetzky: I move the adoption of the resolution. Seconded and carried.

(This resolution has been duly transmitted to Senator Whitney and Assemblyman Seelye together with the personal thanks of the President and Secretary.)

Dr. Robert W. Andrews: The County of Putnam has no medical society. Recently, by consent of the members of the profession in Putnam County and by unanimous vote of the Dutchess County Medical Society, it was decided to combine the two counties in one society under the name Dutchess-Putnam Medical Society, and I ask the consent of this body to that agreement.

Dr. Van Fleet: It would seem as if a matter of that kind would require investigation and should not be decided at a time like this, and I move that it be referred to the Council under the rules of the Society with power. Seconded and carried.

(This consent was unanimously granted by the Council at its meeting on May 18, 1916.)

Dr. Ward B. Hoag offered the following amendment to the Constitution. To lie over until next year.

Strike out the words "each county society shall be entitled to elect to the House of Delegates as many delegates as there shall be state assembly districts in that county at the time of the election; except that each county society shall be entitled to elect at least one delegate and except that whenever at the time of election the membership of a county society shall include members from an adjoining county or counties in which there shall be no county society in affiliation with this society, such county society shall be entitled to elect; from among such members, as many additional delegates as there are assembly districts in the county or counties so represented in its membership."

Insert the words: "The delegates shall be apportioned among the constituent societies in proportion to their actual active membership, except that each constituent society shall be entitled to elect at least one delegate. The House of Delegates may from time to time fix the ratio of apportionment."

The Secretary read the following list of those who desire to become retired members: Charles Sackett Starr, Rochester; Horace D. Hopkins, Buffalo; William Taylor, Canastota; Charles H. Perry, Oneida; H. S. Gardner, Hamilton.

Dr. Sondern: I move you, Mr. President, that these gentlemen be placed on the retired list as requested. Seconded and carried.

The Secretary read the following communication from the Medical Society of the County of Erie:

"At the annual meeting of the Medical Society of the County of Erie, held December 20, 1915, the following resolutions were unanimously adopted:

Resolved, That the Medical Society of the County of Erie, State of New York, hereby makes record of its conviction that to Americans the subject of forestry is a matter of enormous vital significance; that to the medical profession of America the subject should appeal as to no other group of our citizens; that record should be made and repeated by medical societies, county, state and national, urging upon those in authority the importance of the most intelligent study of this question of forestry to the end that suitable action by our government, state and national, be taken in this our most vital problem.

Resolved, That these resolutions be transmitted under the seal of this Society to the Medical Society of the State of New York, with the request that the same receive due consideration and if approved that the matter be brought to the attention of the American Medical Association at its next meeting.

Attest: Franklin C. Gram, Secretary, Medical Society, County of Erie.

The President: What is your wish in regard to these resolutions?

Dr. Van Fleet: I move these resolutions be approved. Seconded and carried.

The President: I will appoint on the Reference Committee called for in Dr. Waldo's motion, Drs. Ralph Waldo, Wendell C. Phillips, and Alexander Lambert, this Committee to report to-morrow morning.

Dr. Kopetzky: I move that we adjourn until 9:30 A. M., Tuesday, and that the first order of business be the election of officers. Seconded and carried.

The House thereupon adjourned.

Floyd M. Crandall,
Secretary.

ADJOURNED MEETING OF THE HOUSE OF DELEGATES.

An adjourned meeting of the House of Delegates was called to order at 9:45 A. M., Tuesday, May 16, 1916.

The President: There being a quorum present, I declare the adjourned meeting of the House of Delegates open for business, and the first order, according to the motion made by Dr. Kopetzky, last night, is the election of officers. The first officer to be nominated and elected is a president.

Dr. Van Fleet: I move that the motion of Dr. Kopetzky be reconsidered, and that the business before the House of Delegates be disposed of before we proceed with the election of officers. Seconded and carried.

Dr. E. Eliot Harris: I move that the election of officers be postponed until we have disposed of new business. Seconded and carried.

Dr. Harris: I move that we now consider the place of meeting for 1917. Seconded and carried.

Dr. Harris: I would like to ask the Secretary if he has upon his files any communications as to the place of meeting for next year.

The Secretary: I have no official communication.

Dr. Luzerne Coville extended to the society an invitation to hold its next annual meeting in Ithaca, and stated that the most suitable time would be after the nineteenth of June.

Dr. Van Fleet: Was not the matter of place of meeting left to the Council last year?

Dr. Alexander Lambert: If we meet after the nineteenth of June it would probably be after the meeting of the American Medical Association, and this would be unwise inasmuch as we have to elect our delegates before the meeting of the American Medical Association.

Dr. Henry S. Stark: I move that the time and place of meeting be left to the Council with power. Seconded and carried.

The Secretary: I have an amendment to Chapter VII, Section 4, of the By-Laws, which is introduced in connection with the matter presented at the last session by Dr. Cruikshank. The first sentence of this Section at present reads: "The Committee on Legislation shall consist of three members including the Chairman." The amendment reads: "The Committee on Legislation shall consist of a Chairman to be elected by the House of Delegates and of the Chairman of the Legislative Committees of the constituent county societies." To lie over until next year.

Dr. H. L. Winter: I will say for the benefit of the House of Delegates that the matter I am about to present was brought to the attention of the Council by the appearance of a bill in the Legislature giving the Board of Regents the power of prescribing the code of ethics for the state medical society. This met with considerable opposition in the Council and the matter was referred to the committee for consideration. This committee, through its Chairman, discussed the matter of the relation between the Board of Regents and the Medical Society of the State of New York in considerable detail with Dr. Finley and Dr. Downing, of the State Department of Education. We considered the matter of extreme importance and so did the Board of Regents. As a result of this consultation, this committee has a partial or rather incomplete report to make to the House of Delegates at this time.

Two projects would be favored by the Board of Regents: First, the addition to the machinery of the Medical Society of the State of New York of a committee, which might be called the Committee on Discipline, to prosecute any physician, whether a member of the state society, or not, for unprofessional conduct.

This committee should hear charges, and if, in its judgment, the charges are proven, should present the matter to the State Board of Medical Examiners, representing the State Board of Regents, with its recommendations. The Board of Medical Examiners would immediately proceed to bring the accused to trial, or if the offenses were criminal, would confer with the Attorney General of the state, who would prosecute. This would relieve the society or any of the constituent county societies of the necessity of proceeding through the local district attorney, a plan which is frequently impossible because of local conditions.

The above duties might be assumed by the Board of Censors of the State Society as at present constituted.

Second, the creation of a committee within the State Society for the purpose of consultation and co-operation with the Board of Regents and its medical advisory board on all matters pertaining to the legal and educational welfare of medicine.

After this conference it is my opinion that if the Medical Society of the State of New York is to be influential in maintaining the best interests of the whole profession, and is not to be satisfied with merely prescribing an ethical standard for its own members, it is essential that a Code of Ethics should appear in detail in the law, thereby making it necessary for any physician in the State of New York to observe the adopted code.

There is no disposition on the part of the Board of Regents to arrogate to itself the determination of ethical standards. Contrarily, the Board of Regents deplores the lack of co-operation with the Medical Society of the State of New York and is desirous of increasing that co-operation and acting with the Society.

Dr. James W. Fleming: I move that this report be accepted and the committee continued, the committee consulting with the Council as they see fit. Seconded.

Dr. Augustus A. Downing: First Assistant Commissioner of Education was accorded the privileges of the floor and stated that the Society had not done its duty toward medical legislation in the past. The Society had left it largely to the Board of Regents to introduce measures beneficial to the Society, to the public, or to humanity, and if there was any clause in any of the bills introduced, which incurred the displeasure of the members, they straightway opposed the bill without seeking the Council of the Board. He said it was high time the Society took hold of matters and determined how to proceed against a body of men who are licensed, but whose licenses should be revoked, and a body of irregular men who came to New York State from other states.

Dr. Van Fleet pointed out that whatever progress had been made in bringing order out of chaos in medical legislation in New York State was the result of the efforts of the State Medical Society.

The motion of Dr. Fleming was then put and carried.

As all new business had been disposed of, the President declared the election of officers the next order of business.

The Chair appointed as tellers, Drs. Pilcher, Giles, and Palmer.

Dr. Phillips moved that nominating speeches be limited to five minutes. Seconded.

Dr. Harris moved that the time be limited to two minutes.

The amendment was seconded, accepted, and the original motion as amended was put and carried.

Dr. Luzerne Coville nominated Dr. Martin B. Tinker, of Tompkins County, for President.

The nomination was seconded by Drs. Harris and Mulligan.

Dr. Waldo moved that nominations be closed. Seconded and carried.

Dr. J. M. Van Cott moved that the Secretary cast one ballot of the House of Delegates for Dr. Tinker as President. Seconded and carried.

The Secretary cast the ballot as instructed and Dr. Tinker was declared duly elected.

The following were nominated and declared duly elected: First Vice-President, Dr. Henry Lyle Winter, Cornwall; Second Vice-President, Dr. Richard J. Kevin, Brooklyn, Third Vice-President, Dr. Montgomery E. Leary, Rochester; Secretary, Dr. Floyd M. Crandall, New York, re-elected; Assistant Secretary, Dr. Albert E. Sellenings, New York, re-elected; Treasurer, Dr. Alexander Lambert, New York, re-elected; Assistant Treasurer, Dr. Harlow Brooks, New York, re-elected.

At this juncture, President Gleason introduced the next President, Dr. Martin B. Tinker, to the House.

Dr. Tinker in accepting the Presidency, said: I want to thank you heartily for the distinguished honor you have conferred upon me. Any man should appreciate, I am sure, the Presidency of the Empire State Medical Society. It is an honor of which any man should feel proud. I did not think little Tompkins could put it over on the State, when they put the proposition up to me. I am not sure I should have consented had I known they could put the thing through, but now it has been an accomplished fact. I want to ask your co-operation in making the meeting next year a very successful one in every respect. I pledge myself, so far as I can, to work for the interests of the society, not for any clique or any man, but I shall try to do my best for the interests of the medical profession of the State of New York. Again, I thank you very heartily.

The following officers were nominated and declared duly elected: Chairman of the Committee on Scientific Work, Dr. Samuel Lloyd, New York; Chairman of the Committee on Public Health, Dr. Joshua M. Van Cott, re-elected; Chairman of the Committee on Legislation, Dr. James F. Rooney, Albany, re-elected; Chairman of the Committee on Medical Research, Dr. Frank Van Fleet, New York, re-elected; Chairman of the Committee on Medical Economics, Dr. Samuel J. Kopetzky, New York; Committee on Prize Essays, Drs. Albert Vander Veer, John F. W. Whitbeck, and Edward D. Fisher, re-elected.

The following were elected as delegates to the American Medical Association for the two year term: Dr. Wendell C. Phillips, New York; Dr. Frederic E. Sondern, New York; Dr. William J. Cruikshank, Brooklyn; Dr. James W. Fleming, Brooklyn; Dr. Dwight H. Murray, Syracuse, and Dr. O. E. Jones, Rochester, for the one year term.

Alternate delegates to the American Medical Association: Dr. Arthur J. Bedell, Albany; Dr. Mary Gage-Day, New York; Dr. Sylvester J. McNamara, Brooklyn; Dr. Nelson O. Brooks, Oneida.

Dr. E. Eliot Harris moved that the appointment of the Chairman of the Committee of Arrangements for the next meeting be left to the Council.* Seconded and carried.

As there was no further business to come before the meeting, on motion the House of Delegates then adjourned *sine die*.

Dr. Floyd M. Crandall,
Secretary.

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* The Council appointed Dr. Thomas H. Farrell, Utica.

COUNTY SOCIETIES.

MEDICAL SOCIETY OF THE COUNTY OF WASHINGTON.

Regular Meeting, Granville, Tuesday, May 9, 1916.

Meeting was called to order at the Central House at 11 A. M. Minutes were read and approved.

REPORT OF COMITIA MINORA.

Meeting held at the office of the Secretary, March 14, 1916. Members present, J. T. Park, R. A. Heenan, R. C. Paris, S. J. Banker, Dr. W. B. Melick, Chairman of the Legislative Committee was invited to be present, several bills now before the legislature were discussed and the doctor instructed to write our representatives regarding them.

Drs. Heenan, Melick and Banker were appointed to present proper resolutions to the society regarding the death of Dr. Wisner R. Townsend.

Dr. Orton, Chairman; Dr. McSorley and Dr. Beattie were appointed a committee to prepare resolutions on the death of Dr. Young.

Dr. Munson was requested to procure a speaker on the subject of cancer. Dr. Heenan was requested to procure a speaker from the State Department of Health.

Drs. Sumner, Falkenbury, Byrnes, Pashley and Banker were placed on the program.

The matter of an advance in fees was discussed, and Dr. Melick was requested to present the subject to the Society at the May meeting.

The names of Walter A. Leonard and Franklin C. Ketchum of Cambridge were presented for membership and duly elected.

The reports of the Secretary and Treasurer were presented and received.

The following resolutions were adopted:

Whereas, We, the members of the Medical Society of the County of Washington, have learned with regret of the death of Dr. Wisner R. Townsend, Secretary of the Medical Society of the State of New York, be it, therefore,

Resolved, That, we at this meeting, hereby express our appreciation of the loss to the State Society and the medical profession at large.

Resolved, That these resolutions be spread upon the minutes of our society and furnished to the State Journal for publication.

R. A. Heenan
W. B. Melick
S. J. Banker
Committee.

Whereas, On February 15, 1916, Dr. Alfred M. Young was taken from among us, he was the oldest member of our society and for 52 years had practiced medicine in this country, having been graduated from the Albany Medical College in 1863, joining the County Society in 1864. His death brings to us feelings of profound regret, the community where he lived so long and served so faithfully has lost an efficient and genial physician and the Medical Society a loyal and honored member.

Be it therefore, resolved, that our Society adopt these resolutions of regret at the death of Dr. Alfred M. Young, and that a copy of these resolutions be inscribed upon the minutes of the Society and a copy be sent to his family.

Z. V. D. Orton
F. W. McSorley
F. T. Beattie
Committee.

A resolution presented by the Albany County Society recommending an increase in the efficiency of the army medical service was adopted, and the Secretary instructed to communicate with our representative at Washington.

Dr. Samuel Pashley, presented a case of Addison's disease.

Dr. Robert C. Davies, a case of no diagnosis giving the opinion of a number of specialists. Meeting adjourned.

Meeting, Comitia Minora called to order 1:30 P. M. Present, Drs. Heenan, Paris, Munson, Park, Banker. Secretary's bill for $7.13, audited and paid.

The Comitia prepared a resolution recommending the advance of fees from 50 to 100 per cent. Meeting adjourned.

Meeting called at 2 P. M.

Members present, Drs. Heenan, Park, Paris, Munson, Beattie, Bromley, Ketchum, Leonard, Banker, Davies, McKenzie, Sumner, McSorley, Rogers, Fryer, Lee, Cuthbert, Falkenbury, Heath, Madison.

Visitors, W. B. May, Medical Expert in Clinical Diagnosis from the State Health Department; Charles S. Prest, Sanitary Supervisor; C. B. Hawn, Albany; H. L. Manchester, Pawlet, Vt.; C. H. Smith, Rupert, Vt.; B. D. Mosher, Granville.

Dr. William L. Munson presented a case of sarcoma of the ovaries in a child six years old.

Dr. David C. McKenzie, a case of diphtheria in which the clinical symptoms and the laboratory findings did not agree, and shock symptoms which were supposed to be anaphylactic occurred.

Dr. Clinton B. Hawn presented three cases of clinical typhoid in which the diagnosis was not supported by the blood test.

A vote of thanks was tendered to Dr. Hawn.

Dr. Clifford W. Sumner read a paper on some cardio vascular facts, which was discussed by Dr. Hawn.

Dr. William B. May, spoke on the relative value of clinical and laboratory findings and symptoms.

Dr. Charles S. Prest spoke on legislative matters.

The following resolution was adopted:

We, the members of the Medical Society of the County of Washington, in our regular semi-annual meeting, hereby tender a vote of thanks to our representatives the Hon. C. O. Pratt and the Hon. G. H. Whitney for the good and conscientious work they have done in the interests of the medical profession and the public at large. The Comitia Minora presented the resolution regarding the advance of fees, and after some discussion, Dr. Sumner offered as an amendment, that the President appoint a committee of three to revise the fee list and report to-day. Carried.

President appointed Drs. Munson, Sumner and Park.

The committee reported and each item of the list was taken up and discussed and adopted unanimously as follows:

Consultation and advice in office, $0.75 and up.
Treatments, examinations, dressings, etc., extra.
Visit in day time within one mile, $1.50.
Visit in night, 8 P. M. to 7 A. M., outside of village, 50 per cent extra over day call.
Visit in night, 9 P. M. to 7 A. M., $2.00 and up.
Consultation fee, each, in addition to mileage, $5.00
Obstetrical cases, ordinary plus mileage, $15.00 to $25.00.
Reduction of Dislocations, $10.00 to $25.00.
Reduction of fracture of small bones, $10.00 and up.
Reduction of fracture of large bones, $20.00 and up.
Complete Autopsy for legal purposes, $25.00.

W. L. Munson
C. W. Sumner
J. T. Park
Committee.

Dr. Lee presented the following which was adopted. That the Secretary have the fee list printed and two copies sent to every medical man practicing in the county.

Dr. Davies presented the following which was adopted:

That all medical insurance examinations requiring urinary analysis be charged not less than $3.00.

MEDICAL SOCIETY OF THE COUNTY OF MONROE

Regular Meeting, Rochester, N. Y., Tuesday, May 9, 1916.

In the forenoon, clinics were held in the General Hospital on Medicine by Charles E. Darrow, M.D.

"Surgery," by Henry T. Williams, M.D. and Loren W. Howk, M.D.

"Obstetrics," by John F. Beiermeister, M.D.

"Orthopedics," by Edward T. Wentworth, M.D.

"Pediatrics," by Joseph Roby, M.D.

"Roentgenology," by Myron B. Palmer, M.D., John D. Fowler, M.D. and James M. Flynn, M.D.

St. Mary's Hospital—"Surgery," Owen E. Jones, M.D.; "Medicine," Joseph R. Culkin, M.D., and James P. Brady, M.D.

Park Avenue Hospital—"Surgery," Charles R. Barber, M.D.

Rochester Public Health Association—Edward G. Whipple, M.D. on the "Examination of the Chest."

Homeopathic Hospital—"Medicine," David B. Jewett, M.D.

Hahnemann Hospital—"Diabetes," John R. Williams, M.D.

The afternoon was devoted to the following:

SCIENTIFIC PROGRAM.

"The Treatment of Graves' Disease with Roentgen Rays," Malcolm Seymour, M.D., Boston.

Discussion by Myron B. Palmer, M.D.

"Personal Experience in the Surgical Treatment of Malignancy in the Neck," Martin B. Tinker, M.D., Ithaca.

"Caesarean Technic, a Further Report," William M. Brown, M.D., Rochester.

"Reports of Some Neurological Cases," Malcolm S. Woodbury, M.D., Clifton Spring.

"State Medical Inspection of Schools," William A. Howe, M.D., Albany.

"Medical Care of School Children," Franklin W. Bock, M.D., Rochester.

"How Can the Community Protect Its Mental Life," Edward L. Hanes, M.D., Rochester.

"The Prevention of Mental Defectiveness," John R. Honiss, M.D., Rochester.

"The Present Extent of State Care for Defectives," Orrin D. Kingsley, M.D., Rochester.

"Aids in Diagnosis," Walter E. McChesney, M.D., Rochester.

MEDICAL SOCIETY OF THE COUNTY OF SARATOGA.

Regular Meeting, Saratoga Springs, Wednesday, May 3, 1916.

SCIENTIFIC SESSION.

"The Action of Radium on High Blood Pressure," Douglas C. Moriarta, M.D., Saratoga Springs.

"Early Diagnosis of Cancer, with Special Reference to Precancerous Lesions," Arthur W. Elting, M.D., Albany.

MEDICAL SOCIETY OF THE COUNTY OF LIVINGSTON.

Regular Meeting, Sonyea, N. Y., Tuesday, May 2, 1916.

SCIENTIFIC SESSION.

"The Present Status of Cesarean Section," William Mortimer Brown, M.D., Rochester.

"Report of Autopsies," James F. Munson, M.D., Sonyea.

"Report of Case," E. Mabel Thompson, M.D., Sonyea.

"Report of Case," Glenn J. Doolittle, M.D., Sonyea.

There was very free discussion of the papers and on the cases reported. The Society was the guest of the Craig Colony at luncheon. It was proposed that the joint meeting with Allegany, Wyoming and Genesee Counties be again held at Portage this summer.

MEDICAL SOCIETY OF THE COUNTY OF SENECA.

Regular Meeting, Waterloo, N. Y., Thursday, May 11, 1916.

The meeting was called to order in the Hotel Brunswick at 11 A. M. After a business meeting, followed by a dinner to those present, the following Scientific Program was carried out:

"The Radio-therapeutic Treatment of Inoperable Cancer," Jacob J. Levy, M.D., Syracuse.

"Treatment of Cancer from the Surgeon's Viewpoint," Owen E. Jones, M.D., Rochester.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

The Art of Anaesthesia. By Paluel J. Flagg, M.D., Lecturer in Anaesthesia, Fordham University Medical School, Anaesthetist to Roosevelt Hospital; Instructor in Anaesthesia to Bellevue and Allied Hospitals, Fordham Division, Consulting Anaesthetist to St. Joseph's Hospital, Yonkers, N. Y. 136 illustrations. Price, $3.50. J. B. Lippincott. Philadelphia and London, 1916.

Embryology, Anatomy and Diseases of the Umbilicus Together with Diseases of the Urachus. By Thomas S. Cullen, Associate Professor Gynecology, Johns Hopkins University. Large octavo of 680 pages with 269 original illustrations and 7 plates by Max Brodel and August Horn. Philadelphia and London. W. B. Saunders Company, 1916. Cloth, $7.50 net; half Morocco, $9.00 net.

Gynecology. By William P. Graves, M.D., F.A.C.S., Professor Gynecology, Harvard Medical School. Octavo volume of 770 pages with 424 original illustrations, 66 of them in colors. Philadelphia and London. W. B. Saunders Company, 1916. Cloth, $7.00 net; half Morocco, $8.50 net.

Tobacco Habit Easily Conquered, How to do it agreeably and without drugs, with appendix: "Tobacco the Destroyer," by M. MacLevy, New York. Albro Society, Inc., 181 Lexington Avenue.

The Mortality from Cancer Throughout the World. By Frederick L. Hoffman, LL.D., F.S.S., F.A.S.A. Chairman, Committee on Statistics, American Society for Control of Cancer; Member American Association Cancer Research; Associate Fellow American Medical Association and American Academy of Medicine, etc., etc. Newark, N. J. The Prudential Press, 1915.

A Manual of Practical Nursing, Prepared for the Washington University Training School for Nurses in the Barnes and St. Louis Children's Hospital. Edited by Helen Lillian Bridge, B.S., R.N., Assistant Superintendent and Instructor of Nurses, Washington University Training School for Nurses, St. Louis. C. V. Mosby Company, St. Louis, 1916. Price, $1.00.

Pulmonary Tuberculosis. By Maurice Fishberg, M.D., Clinical Professor of Tuberculosis, University and Bellevue Hospital Medical College; Attending Physician, Montefiore Home and Hospital for Chronic Diseases, New York. Octavo, 639 pages, with 91 engravings and 18 plates. Cloth, $5.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1916.

Elementary Bacteriology and Protozoology. For the Use of Nurses. By Herbert Fox, M.D., Director of the William Pepper Laboratory of Clinical Medicine in the University of Pennsylvania. Second Edition, Revised and Enlarged. 12mo, 251 pages, with 68 engravings and 5 colored plates. Cloth, $1.75, net. Lea & Febiger, Philadelphia and New York, 1916.

Transactions of the College of Physicians of Philadelphia. Third Series, Vol. XXXVII. Printed for the college, 1915.

Collected Studies from the Bureau of Laboratories, City of New York, Dr. William H. Park, Director. Vol. VIII, 1914-1915.

Book Reviews

Diseases of the Nervous System: A. Text-Book of Neurology and Psychiatry. By Smith Ely Jelliffe, M.D., Ph.D., Adjunct Professor of Diseases of the Mind and Nervous System, N. Y. Post-Graduate School and Hospital, and William A. White, M.D., Supt. Government Hospital for Insane, Washington, D. C.; Professor Nervous and Mental Diseases, Georgetown University; Lecturer on Psychiatry, U. S. Army and U. S. Navy Medical Schools. Octavo, 796 pages, with 331 engravings and 11 plates. Cloth, $6.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1915.

This work states that it is designed as a textbook for the beginner in neurology. It opens with two long methods of examination of the patient, each of which covers much of the same ground; and in neither of which are the various variations from the normal explained. Throughout the first half of the work there is a marked tendency to the use of such coined Greek terms as epicritic and vagatonic, which make the work useless for the beginner as some of these are to be found only in the works of some particular author. Even under the brief clinical descriptions, such terms are not explained; as for example under tabes the writer states that the Romberg syndrome is found but does not even hint as to what the syndrome is. The historical part of each description is the most complete to be found in any similar work but it does seem that a little more space to the clinical descriptions and less to this subject would be of more practical value to the beginner. The chapter on the sympathetic and vegetative systems certainly reflects all the recent advances which have been made in these dark regions of medical knowledge. The clinical descriptions of the nervous diseases found in the first half of the work are much too brief to be of service to the student in recognizing the various classes of cases which occur in the various conditions described; and this is especially so in the description of "apoplexy" in which the conditions due to cerebral hemorrhage, thrombosis and embolism are described together and it is hard to understand why so much space is given to one rare set of cases which equals more than that devoted to all the others. In the neuroses the writer is so dominated by the theories of Freud, that both the real character and clinical descriptions are obscured. The second half of the work is of much more value as it presents clear pictures of the modern classification of the psychoses; but why epilepsy has been removed from the neuroses and places with the psychoses is not explained, especially as hysteria which is admitted to be a pure psychosis still remains among the neuroses.

Arthur C. Brush, M.D.

Diseases of the Throat, Nose and Ear, by William H. Kelson, M.D., B.S., F.R.C.S. (Eng.) Surgeon London Throat Hospital, Golden Square; Hon. Surgeon (in charge of Throat, Nose, and Ear Department), City Dispensary; Lecturer on Diseases of the Ear, Polyclinic. London, Henry Frowde, Hodder & Stoughton. Oxford University Press, Warwick Square, E. C., 1915.

This work prepared, the author states, for the use of "general practitioners and senior students," gives full details only in matters which those so specified "usually undertake to treat." Thus, to the "mastoid operation," brief directions leading to the arrival at a diagnosis are given and the initiatory treatment to be applied are described. We note incidentally that the pros and cons of tonsillar enucleation have been discussed in England and that the enucleators at present have the support of general (medical) public opinion, as in America. We regret to note that the author has not included recurrent earache among the indications for the mastoid operation, though the author considers enlargements of tonsils and adenoids which interfered with hearing, a cause for their removal. In America, we regard repeated earaches as decidedly sufficient ground for operation. Even the rarer diseases come in for a brief discussion. An astonishingly large amount of valuable knowledge is packed into this little manual and the author has a wonderful power of condensing his meaning in brief and simple language. Thus, Killian's method of examining the larynx, including two large sized pictures, is disposed of in a little over two pages. Altogether the reviewer has chiefly admiration for the method of the author which has enabled him in so few pages to give the first essentials of these sciences.

William C. Braislin.

Loss of Hair. Baldness, Falling Hair, Prematurely Gray Hair and Seborrhœa Successfully Treated by the New Quartz Light Rays. Authorized translation from the German of Dr. Franz Nagelschmidt, by Richard W. Muller, M.D. William R. Jenkins Co., Sixth Avenue and 47th Street, New York City.

This monograph of one hundred and seventy one pages is a translation of Professor Nagelschmidt's report of two hundred cases of baldness, falling hair, premature grayness and seborrhœa treated by the quartz light rays.

If it is possible to duplicate Nagelschmidt's results it certainly behooves all dermatologists to equip their offices with the quartz light apparatus, for this special treatment will be a boon to all sufferers from those heretofore almost hopeless scalp and hair conditions and deformities.

The volume under discussion will be of little use to any except dermatologists, and it is a question if they will be easily persuaded to employ the method until further proof of its efficacy is forthcoming.

The Heart in Early Life. By G. A. Sutherland, M.D., F.R.C.P., Senior Physician Hempstead North-West London Hospital, Henry Frowde, Hodder and Stoughton, Oxford University Press, Warwick Sq., E. C., 1914. Price, $2.00. Oxford University Press, 35 West 32d Street, New York City.

This excellent little book contains clinical studies of some of the more important phases of heart disease in early life, and is evidently written out of large experience and sound knowledge.

E. E. C.

A Text-Book of Surgery for Students and Practitioners. By George Emerson Brewer, A.M., M.D., Prof. Surgery, College Physicians and Surgeons, New York; Surgical Director, Presbyterian Hospital, assisted by Adrian V. S. Lambert, M.D., Associate Professor Surgery, College Physicians and Surgeons, and by members of the surgical teaching staff of Columbia University. Third edition, thoroughly revised and rewritten. Octavo, 1,027 pages, with 500 engravings and 23 plates in colors and monochrome. Cloth, net, $5.50. Lea & Febiger, publishers, Philadelphia and New York, 1915.

The third edition of this work is practically a new book. The entire volume has undergone careful revision. Dr. Lambert has been entrusted in large part with the editing of the book. Dr. Brewer's personal revisions are limited to chapters dealing with the surgery of the mouth, neck, face, larynx, pleura, lungs, mammary gland, stomach, duodenum, liver, biliary passages, pancreas, spleen, kidney and ureter. Special considerations of the eye, ear and nose are omitted. Gynecology is not included, and except for these specialties, the work presents practically every phase of modern surgery. The surgery of deformities is touched upon by Dr. Armitage Whitman. The other collaborators are: Drs. Hugh Auchincloss (hand infections, cellulitis, the lymphatic system), Sidney Burnap (hernia), William A. Clark (surgical pathology), J. A. Corscaden (amputations, diseases of joints), William Darrach (fractures and dislocations), J. A. McCreery (muscles, tendons and bursae), F. S. Mathews (hare lip and cleft palate), C. H. Peck (appendicitis, peritonitis and large bowel), E. H. Pool (shock, pericardium, goitre), J. I. Russell (bone infections), F. J. Sloan (bladder, urethra, male genital organs), Fordyce B. St. John (post-operative treatment), Allen O. Whipple (anesthesia and post-operative treatment).

In its present form this work can be highly recommended to medical students. The authors show the result of pursuit of intensive study. R. H. F.

Cancer: Its Cause and Treatment. By L. Duncan Bulkley, A.M., M.D., Senior Physician New York Skin and Cancer Hosp. Paul B. Hoeber, 67 East 59th St., New York. Price $1.50 net.

This book of about 200 pages comprises a series of lectures delivered before physicians at the New York Skin and Cancer Hospital. In the conclusion of the preface the author states that they are offered in the hope that they may be of help to those threatened with or suffering from malignant disease as well as a stimulus for the further investigation of the medical aspects of cancer.

There are six chapters, in which the author considers the nature, frequency, geographic distribution and metabolism of cancer, its relation to diet, medical treatment and clinical aspects.

Lecture V is headed, "Medical Treatment of Cancer." The author apparently believes in the constitutional nature of cancer and advocates therefor a suitable diet. He makes reference to early and middle nineteenth century writers who held similar views (no more recent ones) and considered diet an important feature in the prevention and treatment of cancer. He remarks that it seems strange that the profession and the laity have been slow to accept these views. In one sentence he credits operative surgery with having rendered great service in certain cases, states that the early removal of cancer is just and proper, and in the same breath, before the period is reached, makes an irreconcilable statement, and, in fact, inconceivable. It is: "Moreover it is PERHAPS (capitals mine for emphasis) wise, with our present knowledge, to attempt to remove the offending mass while there is some hope or prospect of benefit, and I am personally OCCASIONALLY advising this in proper cases."

Concerning dietetic and medical treatment, it is stated: "Experience shows that such measures, if taken promptly and thoroughly, can prevent the development of early threatening lesions into those of a malignant character . . . and these should never be neglected when there is the slightest suspicion of cancer."

His aim is to secure the most perfect blood stream possible. He attempts to prevent perverted metabolism by simple living, perfect mastication and the avoidance of excesses, with the maintainance of healthy habits, especially in regard to bowel function. To prevent the occurrence and recurrence of cancer the author advises "a perfect vegetarian diet, excluding eggs and milk with food." However, "one hour before eating, the yolk of eggs may sometimes be taken with advantage, and also milk alone and separate."

Like Lane, of London, who believes that a long list of maladies are the end-results of intestinal stasis, so Bulkley holds as follows: "I almost feel like saying that the toxins produced by the millions of micro-organisms generated through intestinal stasis and fecal putrefaction are the real, incidental cause of cancer."

In the local medical treatment of early cancer of the breast, the author has employed, for many years, Hebra's diachylon ointment and has witnessed the lump vanish under the continued application of the iodide of lead! If diagnosis was made by the microscope we can only say—*Mirable dictu*. No early diagnosis of cancer can be made without the microscope, indeed, even with its aid and the closest scrutiny, occasionally one must search through more than one slide and section of the tumor to detect signs of malignancy.

We feel that the so-called medical treatment has no place in the consideration of cancer at the present time except in a supportive way; that to resort to these measures in preference to early operation when once the diagnosis is made or suspected is the height of folly. We feel that cancer in its incipiency is a strictly local disease, that successful treatment depends upon its early and complete eradication. We feel that the author has failed to emphasize the necessity for early surgical treatment, that some of his teaching is harmful. We trust that no one will attempt to prevent or arrest cancer by any such means. It spells disaster and sorrow. Royale H. Fowler.

A Synopsis of Medical Treatment. By George C. Shattuck, M.D. Second Revised Printing of the Second Edition. Price $1.25. W. M. Leonard, Boston, Publisher.

The reprinting of the second edition of Dr. Shattuck's little book speaks for its popularity. It is terse, necessarily dogmatic considering its scope, and conservative in tone. One may follow its precepts in confidence that it represents the modern orthodox methods of treatment. In reprinting the second edition, opportunity has been used to revise and complete minor details. T. H.

In Memoriam

At a meeting of the medical staff of the S. R. Smith Infirmary, held May 3, 1916, the following resolutions were adopted:

Whereas, It has pleased Divine Providence to remove from us Dr. Wisner Robinson Townsend, and

Whereas, Throughout his boyhood on Staten Island and during the early years of his practice, his natural ability, his earnest concentration, his faithful study and application and his thoughtful consideration of patients and friends finally won him a high position in the medical profession—and as Consulting Orthopedist of the S. R. Smith Infirmary, as a consultant in private practice and as a personal friend he has endeared himself to us and impressed us with his ability, his affability and his strict adherence to the principles of professional etiquette, always giving of his best irrespective of financial return—and as members of the Medical profession we have all benefited by his altruistic, faithful and painstaking service as Secretary of the Medical Society of the State of New York; therefore be it

Resolved, That the Medical Staff of the S. R. Smith Infirmary expresses its sorrow at the death of Dr. Wisner Robinson Townsend and records its sincere appreciation of his services as a Consultant of this Hospital, and further be it

Resolved, That these resolutions be spread upon the minutes and a copy sent to the family of Dr. Townsend and to the New York State Journal of Medicine. Henry C. Johnston, *Secretary*.

Deaths.

Samuel M. Brickner, M.D., Saranac Lake, died May 5, 1916.

A. P. Dodge, M.D., Oneida, died May 3, 1916.

Francis Foerster, M.D., New York City, died June 1, 1916.

Edward Leaming, M.D., New York City, died May 11, 1916.

Willard Parker Worster, M.D., New York City, died June 7, 1916.

John D. Zwetsch, M.D., Gowanda, died May 6, 1916.

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ORIGINAL ARTICLES

RECENT PROGRESS IN THE OPERATIVE TREATMENT OF EMPYEMA OF THE THORAX.*

By HOWARD LILIENTHAL, M.D.,
and
MARTIN W. WARE, M.D.,
NEW YORK CITY.

FOR years the primary treatment of empyema of the thorax has been neglected. The cut and dried methods of past decades with an appalling mortality have gone on with practically no improvement because of lack of investigating interest on the part of the surgeon and because practitioners were apparently satisfied that when an opening had been made in the chest there was, for the time being, nothing else to do.

In nearly one-fourth of the cases the wounds required revision and frequently the patients were turned over to the surgeon for various deforming thoracoplastic operations.

The original cause of the pyothorax did not seem to matter—whether post-pneumonic, metastatic or primarily pleuritic—the treatment was the same. The patient was kept under observation and punctured until pus was found; an opening was made for drainage and the case was too often left to shift for itself. In the simple and unilocular cases in older subjects promptly operated upon there were many recoveries, but the least complication upset everything. When pockets or secondary isolated collections formed it was hoped that they might break into the main cavity, and occasionally they did, but sometimes there was perforation into a bronchus, or the surgeon after many days and much puncturing averted this calamity, the patient meantime suffering all the dangers of sepsis.

A little more than two years ago the First Surgical Service at Mt. Sinai Hospital* took up the study of empyema with a view to developing a line of treatment commensurate with the therapy of infectious processes in other parts of the body.

We began with the assumption that the empyema problem was a pathological and a physiological one and not merely a matter of the mechanical emptying of a cavity from the most suitable point. The behavior of the diseased tissues of the living body had to be considered. We were aware that the causes which originally produced the empyema might still be operative after the chest had been opened and even that new conditions might arise after the operation to prevent a return to the normal.

Accordingly, we planned the therapy with two objects in view. First, the relief of intrathoracic pressure which immediately threatened life and, second, the establishment of a state which should make possible a complete recovery with a minimum of complications and without deformity.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 16, 1916.

* The operations in this series were performed by Dr. Lilienthal, Dr. Joseph Wiener, Dr. Martin W. Ware and a few by the House Surgeon under supervision.

Now, after two years of work and observation we hope and believe that we may report progress.

Our mortality rate is lower than that of the previous ten years in the same institution, * and we have succeeded in preventing the necessity for a single thoracoplastic operation. We ourselves were responsible for many of the failures in the decade just mentioned and this fact appears to demonstrate all the better that the improvement in statistics may fairly be ascribed to changes in the methods.

We believe, too, that we have shortened the number of hospital days per patient by nearly one-third.

The General Management of the Cases.

X-ray.

With few exceptions all our patients were examined with the aid of the Roentgen plate or screen, and we have found this of incalculable value in selecting the type of operation.

Also, some interesting observations have been made in the course of these radiographic studies. We have found that in the encapsulated cases and also in the more chronic general empyemata the affected side is apt to show contraction of the chest instead of distension, the ribs being closer together than on the healthy side. This appearance has often been accompanied by the presence of tough peripleuritic confining membranes so that at operation the lung did not expand and required mobilization by the division or removal of the exudate.

Encapsulation is often beautifully demonstrated so that the most favorable point for drainage can be determined before the operation. We have found (Case 1, F. B.) two distinct sacs containing pus of different appearance and consistency which would have been overlooked without the X-ray. Secondary collections of pus have been demonstrated after the first operation and we have been able to empty these sacs promptly because of the accuracy of their localization. In two cases the secondary abscess was in front, on the right side close to the mediastinum near the base of the heart (see Fig. 5). They were evacuated from the front with the greatest ease and precision.

During convalescence the degree of pneumothorax can be made out and its gradual disappearance observed.

The presence of areas of consolidation can sometimes be determined in cases in which there is doubt between residual empyema and pneumonia. Without the roentgenogram unnecessary and possibly dangerous punctures would have been made.

In two instances the X-ray enabled the diagnosis of foreign body in the lung or trachea to be made when clinically the case appeared to be one of atypical empyema. These patients were bronchoscoped by Dr. Yankauer and the foreign bodies removed.

In one case pneumonia and pneumothorax were demonstrated after puncture, outside the hospital, had yielded a few drops of pus, the patient being admitted for the treatment of empyema. There was no empyema and the patient recovered without thoracotomy.

We do not believe that this little list comprises all of the possibilities of X-ray diagnosis in empyema. And we have not here gone into the question of intrapulmonary disease.

Diagnostic Puncture.

After study of the physical signs and the radiograph the final proof, that of the aspirating needle, should not be made until the patient is on the operating table or within a few hours of operation. Repeated puncture several days before the operation may do harm. For example, some of our cases suffered from spreading infection of the tissue planes of the thoracic wall as a result of needle punctures. This, to be sure, is often a danger avoidable by early operation and by roentgenography before the aspiration. The danger of puncture is much greater in lung abscess in which we believe it is absolutely contraindicated.

Most of our patients had been punctured before they entered the hospital, and came with the established diagnosis of endothoracic suppuration. These patients, however, were X-rayed just the same unless their condition was so precarious that immediate relief was demanded.

Anesthesia.

When the empyema is secondary to pulmonary disease, as is usually the case, we believe that ether should be avoided because of the possibility of its irritating action upon the lungs. We have, therefore, employed either local, regional or nerve blocking anesthesia, or nitrous oxide and oxygen narcosis.

Selection and Type of Operation.

We realized that to obtain a final cure an active pneumonia, a perforating subphrenic abscess, hepatic or otherwise, or an infecting bronchiectasis, might require medical or surgical treatment more than the consequent empyema; yet a patient coming to the hospital cyanotic and gasping, the heart embarrassed by dislocation, had to be immediately relieved. His complete restoration might be a matter for later consideration. Accordingly, these cases were treated by what we have termed *minor thoracotomy,* though in the beginning of our work there were a few operations by the old method. (See table.)

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* Abraham O. Wilensky, Surg. Gyn. and Obst., May, 1915.

THIS TABLE INCLUDES ALL CASES IN WHICH PRIMARY OPERATION WAS PERFORMED, REGARDLESS OF THE CAUSE OF THE EMPYEMA. MARCH 25, 1914, TO MARCH 24, 1916.

General Table of Operations.

I.

Minor Thoracotomy		Major Thoracotomy		Resection for Encapsulated Empyema		Resection (Old Method)		Miscellaneous		Remarks
Total	Died	Total	Died	Total	Died	Total	Died	Total	Died	Miscellaneous cases were:
24	4	26	5	4	0	5	1	4	3	2 Liver abscesses; died. 1 Large lung abscess with perforation empyema. Died of hemoptysis. 1 Old gunshot empyema. Spontaneous rupture. Well.

II.

Operations Compared by Ages.

	Minor Thoracotomy.		Major Thoracotomy.		Resection for Encapsulated Empyema.		Resection (Old Method)		Miscellaneous.	
	Children.	Adults.	Children.	Adults.	Children.	Adults.	Children.	Adults.	Children.	Adults.
	18	6	13	13	3	1	4	1	0	4
Died	4	0	3	2	0	0	1	0	0	3
Aged	1¼, 2, 3, 4.		2, 3½, 4.	35, 55			1½			25, 27, 32.

Total Cases	63
Total Deaths	13
Mortality Rate	20.6%
Or, omitting the two liver abscesses, 61 cases, 11 deaths, Mortality Rate	18%

Total Children under twelve years	38
Deaths	8
Mortality Rate in Children	21%
Total Adults	25
Deaths	5
Mortality Rate in Adults	20%

1. Minor Thoracotomy.

Except for its name, this is nothing new. The procedure is described as follows:

In local anesthesia a small incision is made, preferably in the seventh or eighth interspace in the posterior axillary line and carried through the pleura. The ribs are separated by spreading the blades of a dressing forceps or a pair of scissors and a small tube is slipped into the chest. Or, after the short skin incision, a trocar and canula is made to enter the pleura and a drainage tube is pushed through the canula which is then withdrawn leaving the tube in place. There are various devices to prevent pneumothorax. We have found the simplest to be a permanent syphon to keep the tube full of fluid and so arranged that the level of the liquid in the water supply bottle is lower than the patient's chest, while the tube leading from the chest has its end submerged in weak antiseptic fluid in a vessel on the floor.

In favorable cases this operation is all that will be necessary. The lung expands, the discharge lessens and recovery follows.

During the two years covered by our table we operated in twenty-four cases by this method with four deaths or 16 per cent. These deaths were due to pneumonia or general severe sepsis—often with persistent diarrhœa—median suppurative otitis and metastatic abscesses, the patients being in too low a state for more thorough surgical work (Case 2).

When these minor thoracotomy patients were improved, but showed no sign of prompt healing, we considered them suitable subjects for what we have termed major thoracotomy. This operation, however, was performed at the first sitting whenever the case did not look absolutely desperate.

2. Major Intercostal Thoracotomy with Exploration and Lung Mobilization.

(The procedure has been described in an article by Lilienthal, *Ann. Surg.*, Sept., 1915.)

Briefly, the steps of the operation are as follows:

a. Skin and muscle incision in the seventh or eighth interspace.

Line of incision from the angle of the ribs to the anterior axillary line, more or less, and close to the upper border of the lower rib, to avoid nerves and vessels.

b. Pleura entered carefully to avoid possibly adherent lung.

c. Rib retractor inserted and the ribs separated from four to six inches or more. If still greater room is needed cut a rib or two above or below the wound at the posterior angle.

d. Exploration. Removal by suction or sponging, of all pus and coagula, then inspection and palpation of lung and pleura.

Adhesions to the chest wall should not be disturbed unless they separate easily.

If the lung expands and fills the chest when the patient strains, and if no sign of lung abscess or fistula is present the soft parts of the wound may be approximated with chromicized gut and the skin partly closed by suture.

Because of the division of the intercostal muscles the ribs will not at once fall together. There will be a space of an inch and a half or more (in adults) which will persist for some days. Drainage openings of suitable size anteriorly or posteriorly or both may be left, but it is not often necessary to put in tubes or gauze. Should an inoperable pulmonary suppurating lesion be encountered—bronchiectasis or lung abscess—better resect a piece of rib with the periosteum so as to permit of long continued drainage without a tube and without danger of valve formation and tension pneumothorax.

If the lung is bound down by tough exudate upon the pleura this should be divided by long vertical incision (Fig. 1), when the lung will usually try to force its way out of its confining membrane. Peeling this away with the fingers (Fig. 2) the lung may be further freed by incisions at right angles with the first one

(Fig. 3). Hemorrhage is moderate, often absent. A slight wound of the lung tissue is not serious. Tough adhesions of the lung to the chest wall had better not be disturbed unless they are capable of being divided between ligatures. The loose flaps of membrane peeled from the lung may be cut away and there should be no special effort made to denude every portion of the lung's surface.

During the procedures just described secondary abscesses may be found and turned into the main cavity. Sometimes the lower lobe of the lung is adherent to the diaphragm. This adhesion should be loosened with the greatest caution for fear of entering the abdominal cavity. We have several times encountered between lung and diaphragm collections of pus which must have caused serious complications had they not been emptied.

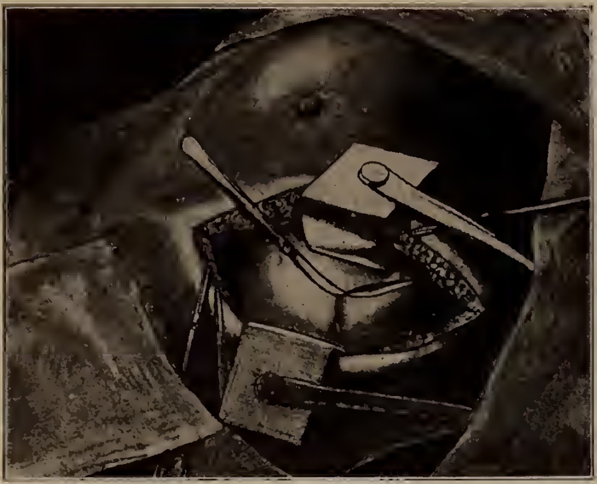

Fig. 1.—The chest is open, the rib spreader in place. The scalpel is making the incision through the layer of dense exudate which confines the lung.

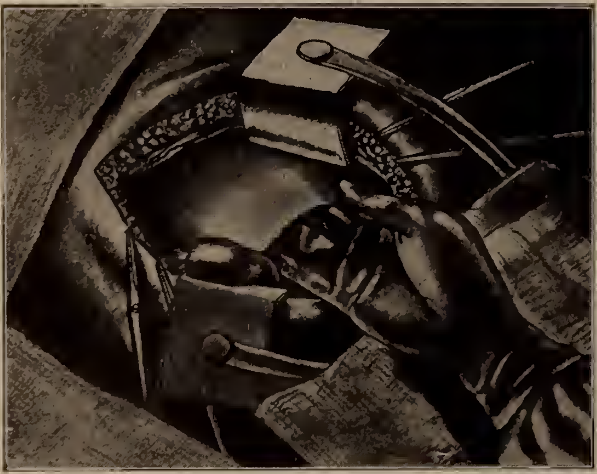

Fig. 2.—The fingers are separating the layer of dense confining exudate from the visceral pleura. The lung protrudes below. (This is, of course, diagrammatic.)

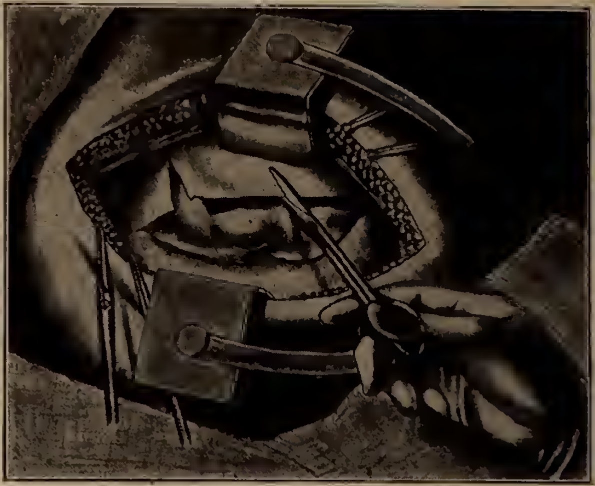

Fig. 3.—With the scissors incisions are made in the exudate to permit a freer expansion of lung.

Having mobilized the lung the wound is closed with tubeless drainage as just described.

We repeat that this mobilization and exploration through the large incision—or major thoracotomy, as we think it should be called—is not advised as a primary procedure for the desperately ill patients. It should follow minor thoracotomy, the operation for immediated relief.*

We have performed in our hospital service twenty-six major thoracotomies with five deaths or 20 per cent.

The fatal endings may be classified as follows:

1. A. S., man, thirty-five years (one stage), gangrenous pleurisy.
2. Bessie T., girl, three and one-half years (one stage), pneumonia, six weeks after operation.
3. O. W., man, fifty-five years (two stages), sepsis (X-ray suspicious of tuberculosis, but pus pneumococcus).
4. N. T., boy, two years (one stage), sepsis. Diarrhoea.
5. L. C., girl, one year (two stages), pneumonia. Sepsis.

The operation seems to us surgically sound. It gives a far better opportunity than any other for thorough exploration and rational treatment. Pockets of pus are discovered which could not otherwise be found. In two cases subphrenic abscesses—evidently the determining cause of the empyema—were discovered, though in both cases the patients died weeks afterward of the pylephlebitis with the liver abscess which caused the empyema (Case 4).

During the after treatment it is easy to explore the chest digitally when retention is suspected or, if necessary, to reopen the whole wound for more thorough visual examination.

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* Doubtless, in cases without confining membrane one of the various suction apparatuses with a fixed paracentesis canula will prove efficient. One of the best of these is that of Phillips. (Demonstrated before the Surgical Section, Acad. Med., April 7, 1916.)

This operation differs from that of Fowler, Delorme and Lloyd in the enormous exposure with little danger, and little hemorrhage, and, too, the deformity following multiple rib resection is, of course, absent. We avoid the great thoracoplastic operations, which seek to bring a rigid chest wall down to the collapsed lung, by mobilizing the lung and bringing it out to the normal thoracic limits. We repeat that out of all our cases, an unselected series of sixty-three, there was not one thoracoplasty.

3. Thoracotomy for Encapsulated Empyema.

When the physical signs and the radiograph indicate the presence of localized intrapleural abscess, whether interlobar or not, the operation must be planned according to the situation of the disease. Often the costal pleura forms one wall of the abscess, and in these circumstances we have resected ribs directly over the pus, trying to avoid infecting the general cavity (Case 3). The case is then treated as an ordinary abscess. It has been found effective to remove a section of at least one rib with its periosteum so that this abscess can be treated by packing with gauze, and later, if necessary, by drainage with a short tube. The removal of the periosteum with the rib prevents the rapid growth of deforming bony bridges which so frequently interfere with proper drainage. We have dealt with four of these cases and all the patients recovered.

This paper is not a plea for any one operation, but for an abandonment of routine in the treatment of empyema. Each case should be studied and its therapy determined according to its individual requirements. We believe that the poor showing of the results in this disease is largely due to the employment of rule of thumb methods.

CASE REPORTS.

Sacculated Empyema of Thorax. Double Sacculation. Thoracotomy with Rib Resection. Secondary Anterior Thoracotomy.

On January 19, 1916, Frank B., twenty-four years old, was admitted to the medical service of Mt. Sinai Hospital.

His temperature at that time was 103½ degrees; pulse, 100; respiration, 36.

Five years before admission he had had malaria in South America.

His present illness had begun five days before admission with cough, fever and bloody sputum. He passed through a rather sharp pneumonia of the right side and on February 2d the chest was aspirated in the fourth space posteriorly in the axillary line and thick pus was found. He was then transferred to the First Surgical Service for operation.

The blood count was 23,600 white cells; polys., 84 per cent; lymphocytes, 16 per cent; red blood cells, 5,040,000.

The X-ray showed a shadow which apparently indicated an encapsulated empyema from the right apex along the right side of the chest next to the ribs down almost to the base (Fig. 4).

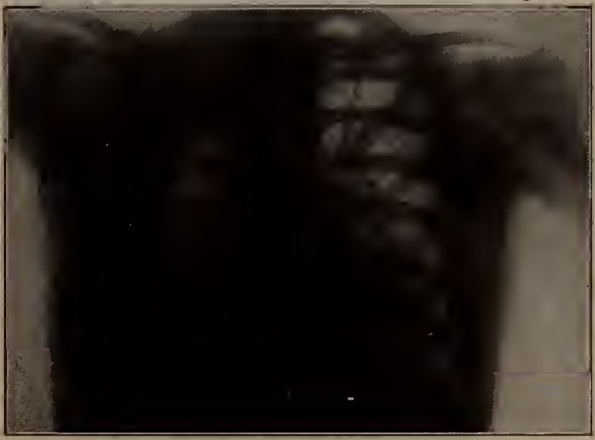

Fig. 4.—Case 1. (F. B.) Large right sided encapsulated empyema.

On February 3, 1916, in nitrous oxide and oxygen anesthesia by Dr. Branower, an incision was made in the seventh interspace, the lung being supposed to be adherent at this point. The seventh rib was resected with the periosteum and clean pleural cavity invaded at the inner end of the wound. This opening was made before the evacuation of the empyema and it was closed by a suture and a gauze packing. The empyema itself was then opened through much thickened parietal pleura and a large quantity of pus escaped. On exploration the lower lobe of the lung was found soft and expansile, the remainder of the cavity lined with tough membrane. Part of this membrane was peeled away allowing good lung expansion and it was thought that the entire pus collection had been evacuated. Exploration showed the cavity to be cleanly marked and on completely emptying it there was no leakage from anywhere else. Dr. Wessler of the Roentgenological Department was present and stated that it was his opinion that the pus extended up to the apex. Therefore aspiration in the axilla was practiced and thick yellowish pus of a different color from that below was encountered. A section of the sixth rib was now excised at the site of the original wound and following a long aspirating needle put in as close as possible to the costal side of the chest a second large cavity was opened with dressing forceps. The entire bilocular cavity was now packed with gauze and the patient sent back to bed.

On February 15, 1916, he was again X-rayed because of a rise in the temperature and a collection of pus anteriorly and against the mediastinum was found. There was considerable gas above the pus (see Fig. 5).

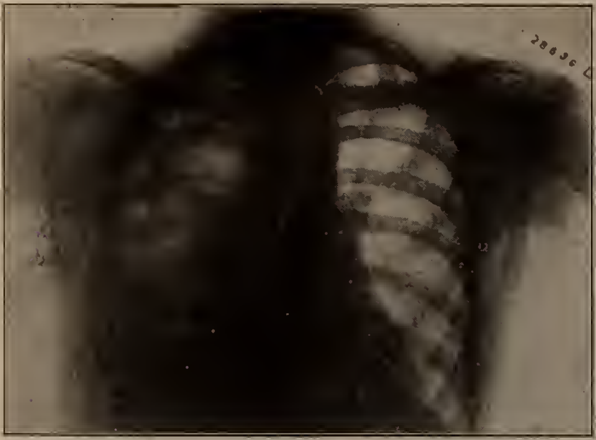

Fig. 5.—Case 1. (F. B.) Secondary antero-mesial encapsulated pyopneumothorax. Note fluid level.

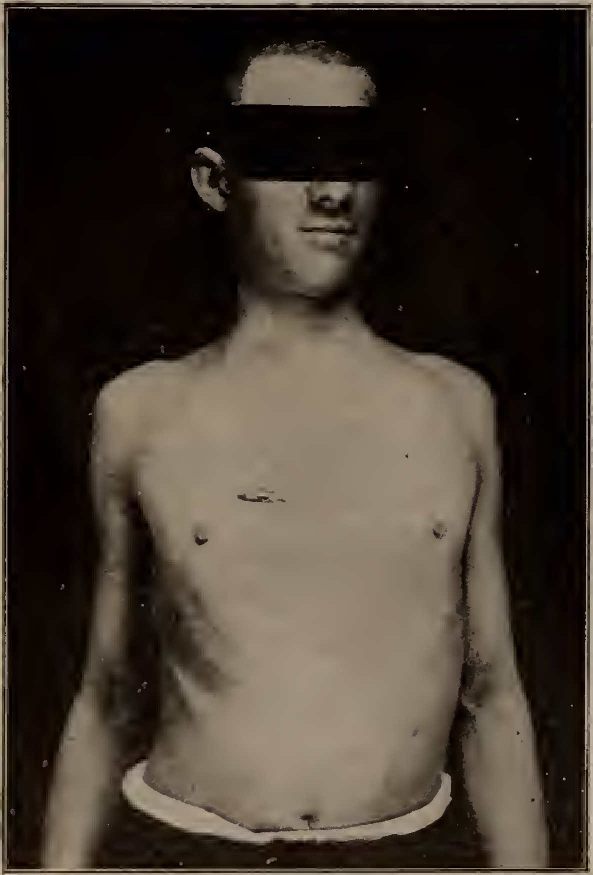

Fig. 6.—Case 1. (F. B.) Patient is well. Note cicatrix following intercostal drainage of secondary empyema.

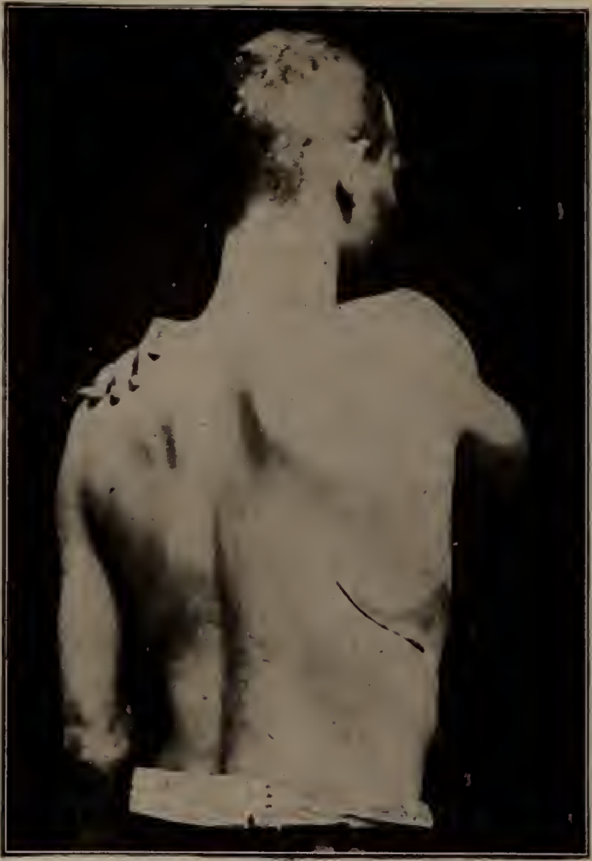

Fig. 7.—Same patient as in Fig. 6. Shows main intercostal cicatrix.

In nitrous oxide and oxygen anesthesia, a small anterior fourth interspace incision was made and gas and pus evacuated. Tube drainage. Under postural treatment this rapidly closed and the patient was discharged well on March 6, 1916. The illustrations (Figs. 6 and 7) show the sites of the cicatrices.

This case illustrates beautifully the value of the X-ray in accurate diagnosis pointing the way to intelligent and prompt surgery.

Empyema of Thorax. General Sepsis. Double Otitis Media. Death.

On February 6, 1916, Celia M., four years old, was admitted to Mt. Sinai Hospital.

Her temperature, 103.4 degrees; her pulse, 144, and respiration, 40.

For two days she was a patient in one of the medical wards and was transferred for operation.

When the child was fifteen months old she had some indefinite intestinal trouble, with loss of weight and weakness which continued for three months.

The illness for which she entered the hospital had begun eighteen days before admission with cough, high fever and dyspnœa. When transferred to the surgical service she was acutely ill and extremely septic in appearance. There was herpes pro-labialis, great dyspnœa, both ear drums were perforated and the ears discharging. The left lung was apparently normal. The right chest was full of fluid, the heart displaced; Grocco's sign present. The day before her transfer she had been aspirated and one cubic centimeter of purulent fluid had been withdrawn.

The blood showed 11,500 white blood cells, with 86 per cent polys., and 14 per cent lymphocytes.

On February 8, 1916, in local anesthesia with alypin, a short intercostal incision was made in the eighth interspace behind the posterior axillary line and a large quantity of pus was evacuated. The organism was later shown to be pneumococcus. The chest was drained by means of a small tube and permanent suction was arranged with the water syphon. The patient continued extremely septic, lying in a semi-conscious state and being fed with difficulty. With slight variation the progress of the case continued for about a week when there developed ecchymoses of a large size upon the face.

A blood culture resulted in the diagnosis of pneumococcæmia.

In this desperate condition a transfusion of 80 cc. of blood from the patient's mother was made by the sodium citrate method and this was repeated twice within the next two days. Needless to say the necessary tests were previously carried out. After each transfusion there was evanescent improvement but the child died in coma ten days after the operation.

The wound showed no sign of gangrene and the discharge had considerably diminished.

Carefully reviewing this case we believe that nothing at present known to science could have saved the patient. Her death was due not to the empyema nor to the operation, but to the effect of the pneumococcus bacteræmia.

ENCAPSULATED EMPYEMA OF THORAX. RIB RESECTION AND DRAINAGE.

Samuel M., twenty-four years old, was admitted to the medical service of Mt. Sinai Hospital on December 10, 1915, and was transferred to the surgical service on Jan. 13, 1916.

Eight years before admission he had had pneumonia, and three years before tonsillitis.

His present illness had begun on December 8th, two days before admission, with pain in the left chest, vomiting, chills, fever and headache. Then with an increase of all the symptoms there came cough with scanty expectoration. Finally dyspnœa and precordial pain.

Physical examination showed a very sick patient, tongue dry and coated. In the lungs anteriorly from apex to second rib on the right side there was exaggerated inspiration with a few râles. No dullness. Posteriorly from angle of scapula to base dullness with bronchial respiration and voice over scattered areas. The left side from the midscapular region to the base showed dullness, increased tactile and vocal fremitus, bronchophony, numerous crepitant râles.

Urine not abnormal.

The blood count was 27,000 white blood cells, 87 per cent polys., 13 per cent lymphocytes.

The X-ray showed an oval shadow of large size in the upper part of the left chest with an opacity below connected with upper opacity by what might be called an isthmus (Fig. 8).

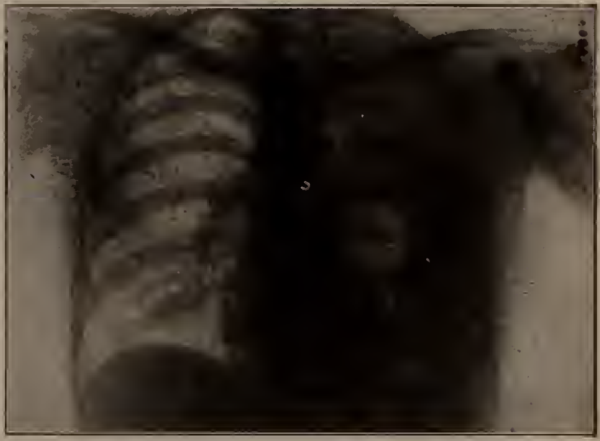

FIG. 8.—Case 3. (S. M.) Large axillary encapsulated empyema. Cured by resecting ribs in axillary region.

This patient had been aspirated a number of times and finally, on the 4th of January, pus was obtained in the fifth space in the mid-axillary line.

On January 13, 1916, as soon as possible after the transfer to the surgical service, the patient was operated upon. In nitrous oxide and oxygen anesthesia, administered by Dr. Branower, an incision perpendicular to the line of the ribs was made in the left axillary region and portions of the fourth and fifth ribs were removed with the periosteum. At once a large collection of pus was encountered and the anatomical conditions suggested by the X-ray were easily made out. There was a strong tendency to expansion of the lung and the wound was packed with gauze and permitted to drain without a tube. The patient made an uneventful recovery and was discharged well twenty-five days after the operation.

PYLEPHLEBITIS FOLLOWING APPENDICECTOMY. SECONDARY EMPYEMA OF THORAX. DEATH.

Abraham E., twenty-seven years old, had been operated upon for acute gangrenous appendicitis, at the New York Post-Graduate Hospital, seventeen weeks before I saw him. Later the diagnosis of pylephlebitis was made and the gall bladder was opened at the same hospital.

On December 29, 1915, he entered one of the medical services of Mt. Sinai Hospital, in a wretched condition, and eleven days later he was transferred to the First Surgical Service for operation, pus having been found on aspirating the left upper chest.

There was œdema of the extremities.

The urine contained albumin and red blood cells but no sugar.

The blood showed 6,100 white cells, with 87 per cent polys., and 13 per cent lymphocytes.

Before the aspiration at which pus was obtained there had been other aspirations when clear green-yellow fluid with 89 per cent polymorphonuclears and 11 per cent lymphocytes had been withdrawn. No growth on culture.

X-ray examination showed a peculiar condition, there being two distinct fluid levels, one below, the other above, both in the left chest.

The empyema being apparently the most urgent condition, he was operated upon on January 10th, in nitrous oxide and oxygen anesthesia. A long incision was made in the eighth interspace and the eighth rib was widely resected with its periosteum. The rib spreader was put in. An enormous amount of gas under tension and exceedingly foul pus was evacuated. It was later found that this pus contained bacillus proteus. The lower lobe of the lung was adherent to the diaphragm and there were numerous other adhesions in the chest, some of which were peeled loose and one which divided the chest apparently into two main cavities was divided with scissors. Dense adhesions in the upper chest were not interfered with. The lung was covered with a greenish exudate, but on peeling some of it away from the lower lobe there was no expansion. With a very guarded prognosis this operation was concluded by closing part of the wound with suture and leaving the rest open for drainage.

By January 24th, there was great abdominal distension from ascites, and in local anesthesia, a tiny transverse epigastric incision was made in the hope of coming down upon an hepatic abscess. Repeated puncture through this incision revealed no pus, although the liver was much enlarged and the abdomen contained a quantity of seropurulent exudate. Prognosis now bad.

A few days later paracentesis in the left iliac region was performed and the opening permitted to drain for ten days. This gave considerable relief but the fluid reaccumulated and the patient's condition became desperate. Finally, intestinal obstruction developed and the patient refused operation until fecal vomiting appeared and he was almost moribund. On February 26th, laparotomy in nitrous oxide and oxygen, disclosed a tough band of adhesions binding the ileum to the anterior abdominal wall. The obstruction was relieved, but on account of the cirrhotic condition of the liver even the slightest adhesion between the intestine and the abdominal wall bled furiously. The patient survived for twenty-four hours, vomiting constantly, then died.

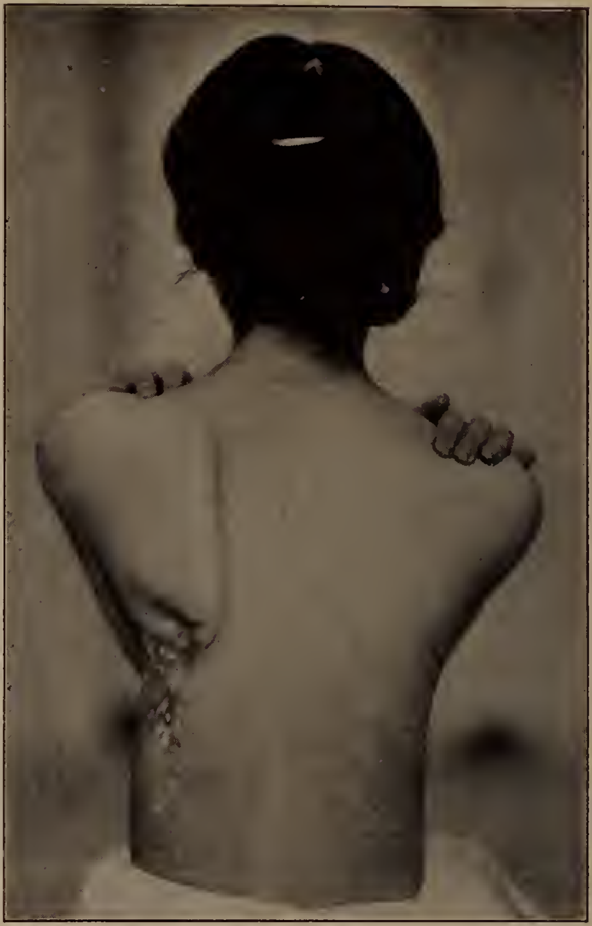

Fig. 9.—Compare with Fig. 7. This patient has had several thoracoplastic rib resections. Note deformity and rigid scapula.

A small piece of the liver was secured and examined by Dr. Mandlebaum who reported a probable healed pylephlebitis, from the history and from the fact that there was a recent cellular cirrhosis.

The case is reported here very briefly because of the complication of thoracic empyema. The death of this patient was not due to his empyema even remotely.

There was another case which is included in our table, very similar to this one, in which a direct perforation occurred between a liver abscess and the right lower pulmonary lobe. At operation a serous effusion was found in the chest, and on peeling away the lung from the diaphragm an abscess was evacuated. Later the diaphragm was opened and the main abscess drained. This patient also died of his liver sepsis.

Discussion.

Dr. Samuel Lloyd, New York City: For about twenty years I have been doing experimental work relative to empyema, alone and under considerable vituperation, and now I find that Dr. Dowd first and Dr. Lilienthal second are ready to occupy the same hill and fight off the attacks with me. I am losing my loneliness.

I have done the same operation that Dr. Lilienthal does, of making the wide incision between the ribs, spreading them apart and getting a much better approach and a much smaller degree of shock. In over 600 cases of empyema that I reported a few years ago, we had not done a single case of thoracotomy, and I have not done any of recent years, although I am still operating pretty freely. And when the criticism is made in regard to my work with reference to rib resection, I want to take one exception. I never cared how I got into the chest; that wasn't the point. The point that I tried to emphasize and have emphasized during all these years was the essential one of expanding the lung. In other words, doing just exactly what Dr. Lilienthal said, making the lung fill the cavity instead of the cavity dropping down on the lung. In order to do that, I suggested that we should stop the anesthetic as soon as we had opened the thorax, and then as the patient gradually recovered and as his reflexes were re-established, his cough, through a partially closed glottis necessarily pumped up his collapsed lung.

I am perfectly well aware of the fact that these large incisions should give us a collapsed lung, and so they will, unless you can start the reflexes at work and unless you can pump up that lung by means of the pump lung on the other side.

One point that Dr. Lilienthal mentioned seemed to be very important, and it is one of the criticisms that will come to him and has come to me in regard to the operation: that we advocate this radical operation for empyema. I have heard time and again that patients should not be sent to Lloyd because "he does a radical operation no matter what the case is and the patient collapses." There is no foundation for such a statement, and I know Dr. Lilienthal does not believe in that. The operation as suggested by me was for cases where the lung was already bound down and where it was absolutely essential to get some method of re-expanding that lung. Dr. Lilienthal prefers either local anesthesia or gas and oxygen and deprecates the use of ether. I have always used the latter and have preferred it, and do still. The ether anesthesia lasts just long enough to allow us to get through with the incision and with the spreading of the ribs and then the patient gradually improves. We get a too sudden expansion of the lung if we get the adhesions broken up too rapidly.

Another point that we must be very careful about—Dr. Lilienthal did not mention it in the paper today, but he has in previous papers—and that is with regard to the separation of the lung from the adhesions to the pericardium and the diaphragm. Here we often have a good deal of difficulty. He says that I have pointed with pride to a mortality of twenty per cent. I am still proud of it—very proud of it—because I was the first man, I believe, to bring the mortality down to even that percentage. And it was done by the very means that Dr. Lilienthal has brought out today, the expansion of the lung and the improvement in the management of empyema. His mortality undoubtedly is less than mine, and I am proud of that. I hope the improvement will go on and that we will reduce the mortality much more.

But there is another point in regard to mortality. It varies from year to year. We all know perfectly well that we have a very great difference in the mortality in pneumonia. One year we will have almost every case get well, and the younger practitioner says: "I have had every case of pneumonia get well. I have a new treatment, and I am *the* thing on pneumonia." And next year he will lose all his cases. Well, now, the same thing happens in empyema. Your mortality will aways depend upon the type of your infection. It is going to be higher when you have a streptococcic infection.

The frequency of the multiple foci is also another important point. The X-ray has helped us tremendously in this business but it has not entirely cleared the question up, and I want to go just a little further here. When we are examining these lungs, particularly in the post-pneumonic cases, we want to be careful to make out whether we are not dealing as well with a ruptured lung abscess. Many of these cases, post-pneumonic cases, have been lung abscesses and that must be taken care of if we are going to cure our empyema cases.

Another thing that is very important is to look out for the interlobar spaces. Dr. Lilienthal has emphasized the necessity of looking for your multiple abscesses in certain regions, but look out just as well for the abscesses that are locked up in the interlobar spaces.

Dr. Lilienthal in closing: In my paper I called attention to the importance of looking between the lobes of the lung for collections of pus. The empyemas that result from lung abscesses have to be treated by rib resection, taking out one or two pieces of rib with the periosteum, and long or even permanent drainage may be necessary.

I appreciate greatly Dr. Lloyd's work in this field, and I think that to him really belongs the credit for the first great advance in the treatment of empyema over the older methods.

TECHNIC OF CESAREAN SECTION.*

By WILLIAM MORTIMER BROWN, M.D.,

ROCHESTER, N. Y.

AT the last meeting of this section (you will recall) I discussed with you the technic of abdominal cesarean section, proposing in the paper read then a slight modification of the Davis operation which would have the effect of making it a modified extra peritoneal one. It is not my purpose to weary you with a repetition of the history of abdominal delivery, but I may remind you that frequent infections and peritonitis have, in the past, led many operators to devise methods of getting at the uterine cavity from above the pubis without passing through the peritoneum. They did this by making the incision low in the abdomen and pushing the peritoneum up so that the uterus could be entered in its lower segment and the child extracted with forceps. This, more difficult, operation was of distinct advantage in many cases but it also had many disadvantages. To overcome these disadvantages Frank, in 1906, made the operation by a transperitoneal route low in the abdomen in which he dissected up the peritoneum from the surface of the uterus and stitched it to the parietal peritoneum before opening the uterus. This operation was doubtless an improvement over the operations of Baudeloque and Trendelenberg, but it also had its objections, viz., the forceps delivery, infection in the region of the bladder, danger of hernia and the certain adhesion of the lower portion of the uterus to the abdominal incision which would produce distortion in future pregnancies. With the advent of the short, high incision of Davis and the excellent results of a careful development of technic the necessity of the Frank operation became very much limited.

For a long time the writer has realized the baneful effect of the manipulation of the intestine which accompanies much of our abdominal surgery. Of course this cannot be avoided in many of the operations which are deep within the cavity but even then we are taught to limit our manipulation to the lowest possible degree. What then of so simple an operation as hysterotomy at term when the uterus lies closely against the abdominal wall with the intestine safely held behind? What excuse can we offer for packing gauze back in there to keep back the intestine and to soak up the uterine contents that we plan to spill in there? Every operator who has done these operations has recognized the necessity of protecting the peritoneal cavity as is shown by the extra and modified extra peritoneal operation devised and also the methods used even in the Davis operation, viz., holding of the abdominal wall firmly against the uterus by an assistant, gauze pads within the cavity and the use of the long guy sutures at the ends of the uterine incision to hold it up after the child is delivered. Many operators feel that these details are sufficient protection but I have been impressed with the fact that in many of the cases where I have done a second operation on the same patient there were adhesions not alone or always to the scar of the other wound but between the omentum and the uterus at points remote from the scar and between the omentum and coils of intestine, and I have found that the patients who had the most shock, post-operative vomiting, distension and gas pain were the ones who were subjected to the great amount of traumatism within the peritoneal cavity, and certainly patients in such circumstances are less able to withstand infection.

In doing this operation, with new assistants every time, it was exceedingly difficult for me to get someone who could or would hold the abdominal wall properly pressed against the uterus, and I was never able to get through a case without having the assistant let the uterus slip down into the pelvis before the incisions were closed. As I thought the matter over it occurred to me that a temporary suturing of the uterus to the abdominal wound would take the place of an assistant and do the work better then he could. If the sutures were put in before the uterus was emptied none of the uterine contents could get into the abdominal cavity, which would do away with the necessity of using gauze or of mopping out the cavity afterward, and it would protect the viscera from injury or handling. This seemed so simple that I wondered what the disadvantages could be. First, what about the time which would be required to put in these sutures? I found that it took from one to two minutes to place eight to ten sutures, but that the time which was used here was saved in further steps of the operation, and the time of the whole operation was not enlarged. Second, would a uterus so suspended to the abdominal wall fail to contract and would there be excessive hemorrhage? I confess that the possibility of such a result almost deterred me from attempting the experiment. I am able now to say that after doing fifteen operations by this method I have found no case which did not contract promptly, and but one case where there was any more than the average amount of bleeding. In no case was there enough hemorrhage to cause me the slightest worry. As I have said before, in speaking of the ordinary operation of cesarean section, there is no more bleeding than one encounters in a pelvic delivery, so I can say of this modification, that there is no more hemorrhage than usually accompanies a pelvic delivery, and what there is is more easily controlled when the bleeding surface is in one's hands.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 16, 1916.

Since I presented this subject last year I have made a change which simplifies the procedure very much and is a distinct improvement. I now use the ordinary towel clamp of Moynihan or Backhaus to hold the uterus to the abdominal wall instead of using the sutures. These clamps are quite as effective, require less time and are more easily placed than the sutures.

In closing my paper last year, I said: "It will be my pleasure to continue to do this operation in this way until I have a series from which conclusions may properly be drawn." In conformity to that pledge I am now pleased to report eleven cases that I have delivered since that time. These added to the four which I reported at that time make fifteen cases delivered by abdominal section in a little more than a year, in all of which the uterus was fastened to the abdominal wall before the child was delivered. There has been no death and in nearly every case the convalescence has been remarkably comfortable and free from vomiting or distension.

Case V.—Mrs. L., Para II. Second operation, the previous one having been done November 5, 1912. It was a justo minor pelvis. The operation was easily done and the uterus was fastened to the abdominal wall with eight temporary sutures. There was no post operative vomiting or nausea and no complaint of gas pain whatever.

Case VI.—Mrs. C., Italian, Para II. Her previous labor was instrumental at the seventh month and the baby was killed in delivery. The external conj. was 16 cm. and she had been in labor 48 hours when admitted to the service in the night on July 26, 1915. The patient was not in a good condition as she was pretty well exhausted and her chest was full of mucus rales. The uterus was low in the abdomen and the walls were unusually thick. Her stomach was washed while she was on the table but she vomited once shortly after leaving the operating room after which her convalescence was entirely normal.

Case VII.—Mrs. L., Para II. Her previous labor delivered a seven pound baby with difficulty by forceps and with considerable injury to the child, resulting in a persistent facial paralysis. I was called by her physician at three o'clock on the morning of August 28, 1915. She had been in labor most of two days and the head was still floating in a normal position. Her pelvis was of a justo minor type with an external conj. of 17 cm. Section was done and seven temporary sutures were used. The child weighed 8 lb. and 14 oz. This patient was also free from any nausea or vomiting or any gas pain and her recovery was prompt and satisfactory.

Case VIII.—Miss McA., age 33. Primipara. There was marked spinal deformity in this case with a tilting of the pelvis which made an apparent shortening of three inches in the left leg. There had been an eighteen hour test of labor and the head was still floating with the cervix obliterated. Section was done on October 1, 1915. Four temporary sutures were used and the patient vomited once, but there was no distension and no complaint of gas pain.

Case IX.—Mrs. S., Para 6, age 30. There was a complete atresia of the os and the patient had been in labor a number of hours when admitted. The atresia was due to an amputated cervix and after the uterus was emptied no os could be found and so the lower portion of the uterus was punctured into the vagina for drainage. At the close of the operation the nurse told me that the patient's temp. was 101 F. when she was admitted. Her infection was clearly demonstrated when she began to have chills and fever on the second day. For two successive days her temp. reached 106. She was given two doses of 60 grains each of sodium salicylate intravenously in 40 cc. of water and left the hospital well in twelve days.

Case X.—Mrs. T. Para, III., age 33. Second cesarean. The first child was delivered by morcelation. Second by cesarean section in 1908 had a cleft spine and died with hydrocephalus a few months later. The last delivery was by abdominal section on January 10, 1916. Five temporary sutures were used and she also had no vomiting or distension. The child was normal and weighed 8 lb. and 9 oz.

Case XI.—Mrs. M., age. 37. Para II, also a second cesarean. She had an external conj. of 16.5 cm. and the intestinal was 8 cm. The abdominal wall was very much relaxed and very thin. The scar of the former operation was cut out at this time and the uterus was held to the abdominal wall with a running suture of catgut. No nausea or vomiting or distension, but she did complain of considerable pain intermittent in character in the body of the uterus for two or three days. Her convalescence was rapid as she was out of bed in eight days and home in twelve, where I saw her on the fourteenth day doing her housework.

Case XII.—Mrs. F., age 22, Primipara. Her pelvis had an external conj. of 16 cm. and she had been in labor fifteen hours with the head not yet engaged. Section was done late in the night of April 24th. It was in this case that I first used the towel clamps to hold the uterus instead of the sutures. This patient had no post operative discomfort of any kind and was discharged well in fourteen days.

Case XIII.—Mrs. M., age 27, Para II. Pelvis had an external conj. of 20 cm., but owing to obesity the internal measurement could not be taken. Three previous deliveries with forceps which had resulted in three killed babies determined her to seek an abdominal delivery to which I assented and section was done on April 3, 1916, the towel clips being used to hold the uterus to the abdominal wall. No nausea or vomiting or pain and the convalescence was comfortable and rapid, going home in twelve days.

Case XIV.—Mrs. F., Russian, age 23, Primipara. Admitted to the service on March 26, 1916, in a condition of advanced cardio-renal disease. She had both mitral and aortic disease with marked cardiac hypertrophy. The whole body was edematous and there was a severe cough and difficult breathing from advancing pulmonary edema. She had advanced to about the thirtieth week of her pregnancy. She was placed in bed and the treatment consisted of a Carrel diet, magnesium sulphate to free catharsis and the forcing of fluid intake. Her condition improved for a time but she soon developed a most intolerable dermatitis which defied all forms of medication and made it necessary to enlarge her diet. This promptly relieved the dermal condition but turned the scale against her general condition. She was hard to manage and the slightest physical exertion threatend a relaxation of her cardiac compensation. On April 27th, it was deemed unwise to further delay her delivery in as much as she was having the greatest difficulty in breathing and the general anasarca was rapidly increasing. When she was admitted a renal function test showed the first color in 31 minutes with a total of but 10 per cent. in two hours. This improved and on April 15th, a test showed the first color in 29 minutes with a total of 32 per cent. in two hours. On the 27th her condition became so much worse that it was thought to be unsafe to delay for a further function test, and after thoughtful consideration she was taken to the operating room and a section was done under local anæsthesia. The operation was done with almost no discomfort of the patient. She was on the operating table but twenty-seven minutes and ten minutes later I saw her sitting in her own room drinking a glass of water. Her puerperium was very comfortable so far as the operation went and she was obstetrically and surgically well at the end of a week. She left the hospital on the tenth day against advice with her general condition about the same.

Case XV.—Mrs. H., Para II, age 38. She was brought to me by Dr. Brown of Nunda, N. Y. Her previous labor, nine years before, having ended in a most difficult forceps delivery, in the course of which the symphasis pubis was ruptured and her convalescence was prolonged and stormy. Examination on May 4, 1916, revealed a rigid symphasis with a slight tilting of one side and a small exostosis on the under side. Uterine contractions at this time were fairly regular but without severe pain. Abdominal delivery was chosen rather than an artificial pelvic one as it seemed certain that it must be one or the other. Section was done on May 5th. The uterus was quite firmly fixed in right lateral torsion, a condition probably caused by the injuries of the first delivery, which made the operation unusually difficult. The towel clamps were used and her convalescence was not quite so comfortable as most of the other cases. While she did not have much of any distension or gas pain she did have some pain low down in the right side of the abdomen in the region of the incision in the uterus. On the fourth day she had a severe attack of vomiting and diarrhœa which prostrated her very much. For several days she had a fever reaching at times to 101 but at present she is sitting up and plans to return to her home at the end of the week.

My conclusions from a study of these fifteen cases, are first, that the fixation of the uterus to the abdominal wall before delivery is of distinct advantage to the patient both as a protection from infection and from pain and discomfort after the operation, and therefore hastens recovery; and second, that while I had feared that it might interfere with contraction of the uterus and so cause unusual hemorrhage this was found not to be so in actual practice, for patients so operated upon do not bleed more than patients who have undergone either the old form of operation or a pelvic delivery; third, that this procedure simplifies the operation greatly, and inasmuch as the sole purpose of the operation of abdominal hysterotomy is to deliver the child, I feel that any detail of the operative technic which will permit us to avoid a joy ride among the other abdominal viscera is of distinct advantage, and my observation of these cases in comparison with those I have done in the other way has convinced me of the benefit of this simple modification of the Davis operation for abdominal delivery.

Discussion.

Dr. William Bryan, West New Brighton: I am interested in this subject and have been doing it for some years, advocating the operation in a very general way. I was very much interested in hearing what Dr. Brown had to say in regard to technic. The more I have done it, the more firmly I have been impressed with the fact that the simpler the technic, the more direct the procedure, the better the results. Since I have been doing the Davis operation, the very high incision, I have paid very little attention to the contents of the uterus, paid very little attention to keeping the uterine wall in connection with the abdominal wall, or paying very little attention to whether the uterine contents escaped or not and I have had no occasion to regret it. I have had the same experience which the Doctor spoke of, in having difficulty in getting an assistant who will keep the uterus from going down into the pelvis and before each operation I made it a special point to tell my assistant that the main thing to do is to get his fingers in the upper angle of that uterine wall and just hold it there and keep it there and I will do the rest.

I should think that the suture of the uterine wall, or to fasten it with clamps or to hold it by any mechanical method simply took an unnecessary amount of time and caused an unnecessary traumatism. That after all when you had succeeded in doing it you had not accomplished much, because I have found that there is not any special harm to come from the uterine contents if other things are looked after with due care. I think the asepsis is the question and careful technic and rapid operating. The less procedure, the less delay, and the less traumatism, the better the result.

Dr. Sylvester J. McNamara, Brooklyn: I would like to ask Dr. Brown in the particular method in which he applies the forceps, how much of the abdominal wall he includes in the grasp of the forceps, whether he has had any experience which caused the forceps to tear the uterine wall.

Dr. W. Mortimer Brown, *Rochester:* I am very grateful for your discussion. Dr. Bovee's question about the treatment of the incision in suspected infection: I practically make no difference—that is unless I am certain that there is an infection—then I believe if I knew that there is an infected uterus, I should do a hysterectomy. The one case which I operated on and which was infected and which I did not know was infected until after I had finished the operation—I may have been remiss in not knowing it—but I came in, in a hurry, in the night, and the interne had the patient ready. I went into the operating room and operated, and when I had finished the operation, was informed that she had a high temperature and I was exceedingly anxious. I was impressed with the fact that while this woman had this terrific sepsis with most severe chills lasting from twenty to twenty-five minutes and a temperature going to 106 afterward and having four or five of these chills in twelve hours, there was absolutely no infection in the peritoneum whatever. She had no distension. She was perfectly flat. It was a true streptococcemia and fortunately she got well.

In regard to the tearing of the uterus which Dr. McNamara spoke about, I have had absolutely nothing of that kind whatever. I have had the guy sutures that I used before tear out, possibly because I did not go deep enough into the uterine wall. The uterus pulling down and the assistant holding up on that guy suture, has caused them to tear out more than once. I shall not use the sutures any more, simply because they are much more difficult, while these clamps I find, take practically no time. I have my assistant placing these clamps before I have completed the incision through the uterus. The clamps may not go into the endometrium at all. The abdominal incision is made and the uterine incision is started. I make one cut and when I do that, the assistant picks up quite a comfortable portion of the uterine muscle and the whole abdominal wall going back a quarter or perhaps a half inch from the edge of the incision and clamps it right there and then I finish my cut through the uterus. Mind you, my whole thought in this thing was not the question of infection, but it was to avoid handling of the intestine, as in case after case I have had, the moment the uterus was emptied it contracted and the intestines overlaid that and I could not keep them back without packing sometimes a whole towel in to keep the intestine back out of the way while I closed the uterine incision.

I suppose probably that I am not as expert as a great many others, but I have seen many operators work under such conditions and it is difficult to hold the uterus up there in the abdominal incision and keep the intestine out. It was to avoid the shock, the solar plexus shock, if I may so call it, of handling the intestine, causing possibly adhesions in the future and the more or less intestinal paralysis that almost always attends these cases for two or three days afterward, that it seemed to me that if we were simply going through the abdominal wall and through the uterine wall, why was it necessary to have to look after the intestine and even sometimes, as in one of the patients I had, the stomach, which absolutely filled the incision and I had to pack a whole towel over that stomach and then put a stomach tube in to get the gas out before I could close the uterine incision? That was entirely my thought in doing the operation in this way. I do every case by this method and select them not at all, because I find that when I get ready and when my uterine incision is fastened absolutely to the abdominal incision. All I have to do is to reach in and pick out the child and I do not have to worry. The assistant is not worrying about the uterus falling down into the pelvis and having to be picked up or his having to hold it up. I then start in before I remove the clamps at all and sew up, after cleaning out the uterine cavity. I sew up practically the entire uterine incision, certainly the muscle before I take the clamps off, leaving the upper sutures long to hold it by while I am putting in the peritoneal suture.

It has seemed to me that it was of distinct advantage in that way. It makes the operation much simpler than it almost always is the other way. As to the uterine contents being in the peritoneal cavity, I agree with Dr. Bryan that probably the uterine contents is, or should be sterile and that there is not much danger from it. But if I have opened a uterus and left it free with the large amount of bleeding that there always is welling up out of that incision, and that blood is going over into the peritoneal cavity and more or less of the amniotic fluid. I am perfectly free to say that I do not feel that it is just right to leave that stuff in there, clots of blood as big as my hand lying in the peritoneal cavity to be absorbed. I guess every operator generally goes in and mops up that peritoneum and all of the handling and mopping with gauze and so forth certainly adds to the danger of adhesions later. The intestines that have been handled and crowded back with gauze and rubbed with gauze and otherwise manipulated are in serious danger of having kinks and adhesions and everything else that goes to cause intestinal stasis, I believe. I feel that if I can hold the uterus up while it is opened and the contents removed and take out the contents and close without complicating the operation by having to work in the peritoneal cavity that I am simplifying the thing very much. I have had now nearly sixty operations—I think it is fifty-seven—and comparing the fifteen done within the last year with the others, possibly my technic is improved in other ways, but certainly these patients get well with greater comfort, with less distension, less complaint, the bowels are emptied more easily after the operation—frequently one simple enema will start the gas without any trouble, occasionally they are a little more intractable, but almost every one, and it has been very marked to my mind, possibly prejudiced I will admit, that they have been much more comfortable after these operations than after the operations that I have done before. That was entirely my reason for making that suggestion.

The Chairman: I would like to ask Dr. Brown how many clamps he uses in that incision.

Dr. Brown: From four to six; two to three at the side of the incision.

A REVIEW OF FIVE HUNDRED CASES OF PELVIC INFECTION WITH END RESULTS.*

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It is always of interest to compare one's end results with those reported on the hospital history at the time of the discharge of the patient, and in no part of gynecology is this more illuminating than in the end results of pelvic infections. In order that we may come to a better understanding of what happens in pelvic infections, as the result of *conservatism, non-operative, and operative,* we will attempt to make a brief analysis of five hundred cases which have been treated surgically and non-surgically in my services at the Long Island College Hospital and the Jewish Hospital in Brooklyn. *In making this study we have attempted to make a careful investigation as to the clinical history and etiology of the infection, the clinical course before operation, the pathological findings at the time of operation, the condition on discharge and a study of the anatomical and symptomatic cures at a sufficiently remote period to allow for the proper re-establishment of the pelvic functions.* In this paper we will include the following classes of cases:

1. Those cases in whom no operative procedure was done, but where time alone permitted the regeneration.
2. Those cases who after a symptomatic cure have returned for sterility and have been operated upon for a cure of this condition.
3. Those cases in whom it has been necessary to remove infected structures, yet conserve the menstrual function.
4. Those cases which had both fallopian tubes and the uterus infected and in which it was necessary to ablate the uterus along with both tubes, yet conserve one or both ovaries for the maintenance of the internal secretion.
5. Finally, those cases in which a panhysterectomy with a double salpingo-oophorectomy was done.

During the first years included in this report our trend was entirely toward that of conservation; tubes were removed while the ovaries and uterus were retained; tubes were resected and ovaries were subjected to conservative treatment such as resection and suspension. The ovaries were retained in situ or resected whenever possible, even though the uterus was removed. *In the last two years a study of the life history and clinical course of these retained ovaries has caused us to swing toward the radical* and do a large number of total extirpations. It is impressive to note in the study of these latter cases, the great reduction in the primary morbidity and the great improvement in both the anatomic and symptomatic cures. Two points stand out clearly, *first that there is no use of conserving the ovary and the function of ovulation unless it is also possible to preserve the function of menstruation; secondly, that the conserved ovary behaves badly in the presence of pelvic infection,* it is more difficult to maintain its circulation, and the impairment of its circulation and innervation tends to create cystic formation, adhesions and pain. A sufficient number of these cases have been re-operated upon, where conservation has been previously practised, to convince the unbiased that definite trauma, circulatory disturbance, and impaired innervation, all tend to disturb the functional activity of a retained ovary and that its value in maintaining the internal secretions of the woman is comparatively short-lived. Is it the province of the gynecic surgeon to leave a finished or unfinished piece of work? If it is agreed that the former is his province, how can he secure the ultimate cure of the individual woman if questionable structures are left behind? Another point which has impressed us in our study is that the real index of conservation is shown by Nature, if one will but look and note. This is evidenced by the exudative processes which defend the organ against the invading organism, and by the regeneration of organs and the re-establishment of function, which result from giving Nature time for resorption. We should follow along these lines, the dictum so tersely set down by Simpson, that no infection should be operated upon in the acute or subacute stage. *That is, until the temperature has been normal for a period of three weeks, or until it is possible to examine the patient without finding an exudate, or until such examination fails to excite a temperature exacerbation or an increase in the leucoyte count, or until the said count is below and remains below eleven thousand.* At such a time we will have tissues to work with whose lines of cleavage will permit of separation and allow the proper recognition of anatomical structures.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 18, 1916.

It is further imperative that *sufficient attention be given to the bacteriology of the infection, for different organisms have different life histories.* The two principal infective agents are the gonococcus and the streptococcus. These differ widely in the persistence of their virulence, but may usually be differentiated clinically by the history of the infection and the location of the resulting lesion. Gonorrheal inflammation extends almost invariably along the uterine mucosa into the tube, and thence to the ovary and peritoneal cavity. Therefore, the characteristic lesion which we have found has been a sactosalpinx, suppurative salpingitis, with or without a complicating ovaritis and peritonitis, or the results of these inflammations. Gonorrheal pus confined in the tube may become sterile in six or eight weeks, or it may continue active for a longer time. Organisms are seldom found to be present after three months. Many symptomatic cures are effected by time in gonococcic tubal infections. Pelvic masses disappear, the uterus becomes movable and the adnexa insensitive, if sufficient time and intelligent care is given to the management of the individual case. The tube may even regenerate sufficiently to allow the passage of the ovum. The large number of ectopics following pelvic inflammations are evidence of this. Streptococcic masses follow infections due to miscarriage, labor or intra-uterine instrumentation. The indiscriminate use of the curet has occupied a prominent place in the etiology of our series. *The streptococcic lesion is almost invariably in the parametrium, unless there is a mixed infection,* when we may find lesions in the uterus, tubes and parametrium. The streptococcus travels through the lymphatics of the connective tissues, *causing a reaction which produces a subperitoneal edema and a contiguous plastic peritonitis.* Crossen describes the distinguishing characteristics of a chronic parametrial mass as, first, its situation in the connective tissue, usually in the broad ligament; second, its low situation in relation to the uterus, often coming far down beside the cervix; third, the intimate blending of the mass with the uterine wall, and finally, its hardness. In the operative management of streptococcic masses, it must be remembered that the streptococcus may lie dormant for years, ten to fifteen, and then light up after surgical intervention and produce a fatal sepsis. The writer has had three such cases, where years after the primary infection the streptococcus was let loose in the circulation by a spontaneous labor, a curettage for hemorrhage, or a simple section. We are acquiring more and more respect for the virulency of the streptococcus. In our service at the Long Island College Hospital, in every case of uterine bleeding, supposedly due to miscarriage, an intrauterine culture is taken before instituting any treatment, and the uterus containing streptococci *is never entered.*

In *each case in this series we have attempted to determine the source of the infection.* In doing this we have found that a study of the clinical course and the location of the lesion, as referred to above, has been of inestimable value. Where proper significance has been given these two points, the operative findings have almost invariably coincided with the preoperative diagnosis. In addition we have always given these infections sufficient time for Nature's processes to accomplish the work of regeneration. When one realizes that a pelvic inflammation usually involves all the structures in the pelvis, including the adjacent peritoneum and that part of the adjoining intestinal tract, just as the acute infections involve the tissues of the nose and pharynx, one must be impressed with the necessity of allowing sufficient time to elapse for such resorption to take place, as will permit identification of the remaining pelvic structures. Only by following such a rule can any attempt at conservation be successfully followed. It is generally admitted that an ovary should be preserved whenever possible, because of the influence which the ovarian secretion exerts on the patient's health. We are convinced, however, that the removal of an ovary which has undergone changes as the result of constant contiguous infection, has less bearing on the future well-being of the woman, than the removal of an ovary which has undergone cystic changes from circulatory derangement. Clinically ovaries imbedded in inflammatory masses have so much of their circulation and innervation disturbed, that regeneration is very imperfect, and when retained have often become a menace rather than a boon to the woman's health.

In the cases in which no operative procedure was done, we will include all those patients suffering from post-abortal infections with parametric exudates and intraperitoneal masses of varying size, who entered the hospital with a temperature ranging from 102^5 to 105^6, following instrumental interference within the uterus, or where a "cleaning" had been done because of the supposed existence of the retained products of conception. These patients were sick on their admission: they had apprehensive faces, high pulse rates, tense, tender abdomen, masses in the lower quadrants, with varying degrees of abdominal distension. They all received a routine treatment. That is, their blood was taken for a complete blood count and a blood culture, and cultures were made from the secretions of the glands at the meatus, Bartholins glands, and the interior of the uterus. The presence or absence of an intrauterine content was considered immaterial after these observations. The woman was placed in a high Fowler's position, a rectal tube inserted in the anus, an ice-bag or bags applied to the lower abdomen, and absolute gastric abstinence was enforced. Intestinal quiet was maintained with small doses of morphine. If there was much distension of the upper abdomen, the stomach tube was passed and the stomach lavaged. If there was no vomiting, the free exhibition of pure water was allowed. When vomiting was present, sufficient fluid was introduced by hypodermoclysis to tide the patient over until the stomach was tolerable. Occasionally fluid was introduced by entroclysis, but our experience shows that distension of the colon by even small amounts of saline increases the peristalsis. Usually within forty-eight hours the peritoneal irritation had subsided and the abdomen became soft and the exudative mass appreciable to palpation through the abdominal wall. (*We consider an exudate to be a conservative process, limiting the bacterial extension.*) Therefore, these masses were not examined, for manipulation squeezes the toxins into the lymphatics and surrounding tissues, which is evidenced by a rise in temperature and increase in the activity of the local signs. Whenever possible, these women were kept on the roof, where there was unlimited fresh air. This increased the general tone and did much toward hurrying their convalescence by raising their red-cell count, improving their appetite and increasing their general resistance. *Of the one hundred and four patients with exudates, one hundred and one recovered after periods of from eleven to sixty-seven days.* Seven developed pus collections in the cul-de-sac of Douglas, which were drained by posterior colpotomy. Three were opened and drained by an incision just above and parallel to Poupart's ligament. In eighty-seven the exudate entirely disappeared, leaving a movable uterus without gross adnexal lesions. Fifteen have a definite pathology apparent on bimanual examination. Of this number, eleven have consented to abdominal section for relief of symptoms. The pathological findings have been instructive as they have been fairly constant in all of the abdomen explored. The pelvis has been found walled off from the general abdominal cavity by the sigmoid which had become adherent to the posterior fundal wall of the uterus and the omentum attached more or less extensively to the anterior fold of one or the other broad ligaments. The tubes and ovaries were prolapsed and adherent to the posterior face of the broad ligament, and in five the abdominal ostium of the tube was closed by the results of the inflammatory processes. In only seven was it necessary to sacrifice a tube or ovary, as when the adhesions were freed, the several pelvic structures assumed an entirely different picture. No bacteria were found in the tubal content. *Thirty-six have had subsequent pregnancies, and two, both of which showed atrophied organs, have not menstruated since the primary infection.* Neither of these women have consented to section, even to satisfy my curiosity.

Another class made up of *one hundred and sixty-eight women all of whom have at some time been under our care in our dispensary or hospital services,* suffering from the results of chronic infection, *presented themselves for the relief of sterility.* A large proportion of these patients, one hundred and nineteen in all, had symptomatic cures: that is, they were free from pain or had no more pain than they had suffered prior to the original infection. Their histories bear a striking similarity to one another, in that they had never been well since marriage, or following marriage, they had conceived and had a spontaneous birth or abortion which was followed by pain in one or both sides, leucorrheal discharge, some menstrual anomaly, and subsequent sterility, or shortly after marriage they had complained of indefinite pelvic symptoms, as vesical irritability, leucorrheal discharge or change in the menstrual habit with frequent exacerbations of pelvic pain, abdominal soreness and increased discharge. These symptoms usually occurred near a menstrual period, and were followed by absolute sterility. The examination of the husband by a competent urologist revealed positive evidence of former indiscretions or the presence of infective cocci in the prostatic urethra, in all but eight of those examined. In only a few of the women could the gonococcus be isolated, although a large number showed a diplococcus which did not stain gram negative. We have classed these as mixed infections. Forty-nine had detectable pathology in the fornices. The remaining one hundred and nineteen presented almost no gross lesion save an endocervicitis and a utero-sacral parametritis which was elicited on bimanual examination. This limited the forward movement of the cervix and produced pain on motion. The posterior cellulitis always produced some pre and co-menstrual lumbo-sacral pain. This with sterility, dysparunia and leucorrheal discharge made up the symptom complex complained of. The abdomen was opened because of the history, not because of the general pelvic findings. It has always been a source of surprise to the writer, how much pelvic pathology may exist in these old cases without being detectable by the most painstaking pelvic examination, even when this examination is made with the aid of a general anesthetic. Consequently, he has come to rely largely on the detailed history in making his preoperative presumptive diagnosis. *Of the one hundred and sixty-eight cases operated upon, only twenty could be relieved of their sterility.* In other words, on only twenty could such conservation be practised as to permit the proper transit of the ovum. This, at first glance, is a most discouraging record, but when one considers that all of these women have passed through an actual tubal infection with the resulting morbidity of such infection, as shown by finding occluded, nodular, adherent and distended tubes, which required ablation in one hundred and thirty-seven instances, we must congratulate ourselves on having had the courage to insist on abdominal exploration even in the absence of gross palpable lesions. Seven had the free end of the tube closed and the distal portion distended with clear serous fluid. This was evacuated by dorsal incision and when the uterine ostium was pervious to a fine ear probe, the mucosa was everted and cuffed back on the serosa with fine catgut sutures. Five of these women have subsequently become pregnant and are comparatively free from pelvic pain at the present writing. The remaining two have not been benefitted. In the remaining patients who were cured of their sterility, two fairly constant lesions were found, *i. e.*, diffuse cobweb adhesions about the tube, changing its course and constricting its lumen, and the ovaries plastered to the posterior face of the broad ligament usually presenting some follicular change, surrounded by the adherent tube. On carefully freeing these thin adhesions, both tube and ovary presented a more favorable impression. The pelvic circulation was re-established by raising the uterus, by one of the methods of shortening the round ligaments, and the ovaries were suspended by shortening the infundibul-pelvic ligament, as suggested by my associate, Dr. Wm. P. Pool. Fifteen of these women have been pregnant; eight have enlarged and painful ovaries, and sixteen are free from any pelvic trouble.

In the next class I have included a study of the records of one hundred and seven women, with gross pelvic masses, in whom it was necessary to remove infected structures, yet conserve the menstrual function. This series included sixty-two cases where both tubes were the seat of chronic purulent infection with saculation, in whom both ovaries, though presenting some pathology, could be freed from the infected mass and conserved: twenty-three cases of unilateral tubo-ovarian infection on one side with the results of a tubal inflammation on the other; and twenty-two cases, eleven of hydrosalpinx and eleven of tuberculous salpingitis, where the ovary to all gross appearance was normal. In the management of these cases, the greatest care was taken, where tubal ablation was necessary, not to in any way interfere with the collateral ovarian circulation in removing the infective focus. Two techniques were adopted. In our earlier cases, we ligated the meso-salpinx at three points and excised the tube including the uterine coruna at the uterine ostium, leaving as much broad ligament as possible. The ovary was suspended well out on the round ligament and the raw edge of the broad ligament covered by rolling the round ligament over it with a buttonhole stitch of fine catgut. In our later cases, we have employed the Bell-Beuttner technique, which not only removes the tubes, by section through the upper edge of the mesosalpinx, but includes the infected upper segment of the uterus, thus removing a focus which causes considerable trouble in these old inflammatory cases after operation. The round ligaments are preserved and are used to suspend the ovary and cover the raw edge of the meso-salpinx, as in ordinary salpingectomy, and the line of uterine suture resulting from excision of the fundus is covered with the vesico-uterine fold of peritoneum which maintains the uterus in anteversion and furthermore serves to peritonealize all raw surfaces, thus preventing intestinal and omental adhesions, which so frequently complicate the smooth recovery of tubal ablation.

As a result of salpingectomy, two annoying clinical symptoms have been noted. First, the persistence of the leucorrheal discharge, and second, menstrual disturbances which we have attributed to the retention of a large infected uterus, particularly that part of the upper segment through which the interstitial portion of the infected or involved tube passes. Such an infected uterus does not reduce in size, and therefore, menstruation has frequently been very free and painful. Furthermore, the difficulty of preserving the free circulation through the ovarian anastomosis at the uterine cornua, has resulted in a large number of cystic ovaries, *i. e.*, cystic degeneration.

In the Bell-Beuttner technique, this interference with the utero-ovarian anastomosis is avoided by separating the folds of the broad ligament as we approach the utero-tubal junction below the tubal entrance and exposing the fundal branch of the uterine artery as it passes up the side of the uterus. The uterine artery is tied just after it sends off the branch which anastomoses with the ovarian. Not only does the ligature at this point control the bleeding during excision of the fundus, but allows of a free and uninterfered with circulation through the vessels in the ovarian ligament.

The records of this series show that eighty women are well and free from all pelvic pain. Eleven, or nearly ten per cent. of those in whom simple tubal extirpation was practiced, have returned for re-operation because of metrorrhagia, menorrhagia, or cystic degeneration of the retained ovaries. Of the remaining sixteen, all show some ovarian enlargement and complain of co- or intermenstrual pain.

In the fourth group, there were eighty-nine cases in which the uterus as well as the tubes and one ovary presented such pathology at the time of the original operation that ablation of the uterus, both tubes, and one ovary was required to give the necessary surgical relief. All of these women were under forty-two years of age, hence it was considered wise to conserve the best ovary, when possible the right, in order to maintain the internal secretion. In this group there were two deaths from operation. Eighty-five had total hysterectomies, as is our habit, for as has been shown, both the morbidity and the mortality is lessened by total ablation, thereby getting better drainage of the parametria. Again, the troublesome leucorrhea from the retained stump and the possibility of malignant changes in the cervical epithelium are avoided by its complete removal. The conserved ovary was always suspended by its ovarian ligaments, attaching it to the round ligament after the method suggested by Chipman. This insured its high position in the pelvis out of range of intestinal adhesions and infection.

Our end results in this series have been most disappointing from the following standpoints: First, the maintainance of the ovarian secretion has not prevented the nervous symptoms of the climacteric in a large proportion of our patients, as flushes, headaches, sweats, etc., were complained of and noted in fifty-nine, beginning within three months after the operation and persisting for from six months to two years. Second, pain and sensativeness over the retained ovary, especially the sensation of burning, was a prominent symptom in twenty-eight, and the ovary was found to be cystic in thirty-one, when examined one year after operation. Fifteen have been re-operated by my assistants or myself for these cystic changes. In every case reopened, the ovary was found to have degenerated and to be surrounded by dense adhesions. In five of the cases where the left ovary had been retained, the sigmoid was intimately adherent, surrounding it, the ovary lying in a bed of exudate.

Our final class includes twenty-two women who were suffering from the results of extensive suppurative disease, involving uterus, ovaries, tubes and pelvic peritoneum. Six had previously been drained for pus accumulations by the vagina. On opening the abdomen, the pathology showed such destruction that any conservation was out of the question and total ablation of the pelvic contents was done. All of these women recovered from the operation. Examination from six months to two years after the operation, showed the pelvis free from masses; three had hernia, one of which has been re-operated; the climateric symptoms were prominent in four. In the others the general health had so improved that their nervous symptoms were unnoticed.

Our impressions from this study are definite and may be summarized as follows: First, that the etiology in pelvic infections can be more or less accurately determined by studying the clinical history and the location of the lesion; second, that time works miracles in the resorption of the pelvic inflammatory masses, consequently, all acute pelvic inflammations should be treated expectantly until all exudate subsides and the temperature has been normal for over three weeks; third, that conservation should only be attempted after all exudate has been absorbed; fourth, *that the ovary dug out of an inflammatory mass has its circulation and innervation greatly disturbed and is very liable to degenerative changes;* fifth, that our best results in conservation have been where not only ovulation but menstruation was preserved; sixth, that the general condition of the patient, other than her age, has a great deal to do with her behavior subsequent to radical operation, and finally, that total extirpation is better when the pathology is extensive, than conservation of vitally impaired structures.

INFECTION OF THE UTERINE APPENDAGES; ITS SEQUELAE; ITS NON-SACRIFICIAL TREATMENT.*

By **E. E. MONTGOMERY, M.D., F.A.C.S.,**
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THE development of infection of the appendages is favored by malpositions of the uterus, lacerations of the cervix and of the pelvic floor; in fact, by any condition which favors continued congestion of the pelvic structures. Such conditions render the structures less resistant to the infective processes, or make the soil more favorable for the nurture and promotion of the infective elements. The infection most frequently reaches the tubes and ovaries by the continuous mucous surface. The periodic change in these structures incident to menstruation renders them particularly vulnerable both as to the tube and the ovary. Indeed it is creditable to the resistant powers of the individual that we do not find infection more frequently when we consider the opportunity for its more ready entrance occasioned by the disturbing influence associated with menstruation. The micro-organisms most frequently responsible for pathogenic development in these structures are the gonococcus, staphylococcus, streptococcus, colon bacillus, bacillus of tuberculosis, pneumococcus and the bacillus responsible for la grippe infection.

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These organisms vary greatly in their destructive influence upon the genital canal, although it is naturally affected by the immunity or resistance of the patient. Probably the gonococcus is the most superficial in its effect when uncomplicated. The gonococcus owes its baleful reputation to its preparation of the soil for the development of other organisms and thus favors a mixed infection. When uncomplicated, a catarrhal inflammation of the tube is set up which may or may not cause closure of the tubal ends. Closure of the tubal ends is the response of Nature in her defence against the invasion of the organisms and the effort she makes to limit its further progress. Failure to close the abdominal ends of the tubes is due to one or two causes, either to the virulence of the infection being so overwhelming that Nature is unable to erect the defence and the condition becomes systemic. or the infection is so slight she does not feel the necessity of standing guard in the erection of extra defences. The pelvic structures may be included by the infection passing through the tubal canal and reaching the peritoneum through the abdominal end, or it may be directly invaded through the wall instituting an inflammation which involves everything in the vicinity forming an extensive abscess in which is matted together tube and ovary, the collection filling up the retrouterine space. Such collections prove destructive to function and there are no measures which offer promise either of restoration of function or relief of symptoms; the latter only is secured through a sacrifice of the invaded organs. The infection may have its origin through impure sexual relations, through want of care in the management of an abortion or labor, or in examination or operation. Not infrequently during an epidemic of influenza will be seen a severe attack of pelvic inflammation with suppuration which is due to the prevailing infection. Several cases came under my observation during the epidemic in the beginning of the present year, in one of which it was necessary to open through the vagina. The evacuation of a considerable quantity of pus and drainage resulted in relief of the symptoms.

The effect of the infective organisms on the appendages varies from such complete involvement and destruction of structures as to make their sacrifice apparent, to a slight catarrhal inflammation of the surface tissues which under appropriate care readily undergoes resolution with complete restoration of function. The advent of an infective process which taxes the powers of the individual to withstand promptly leads to the erection of barriers toward its further progress.

A natural point for the erection of such defences is at the abdominal end of the tube which causes its closure. This closure is facilitated by contraction under inflammation of the longitudinal fibres of the tube which retracts the fimbriae: should any project an opportunity is afforded for leakage. In such instances it is not unusual to find that each menstrual period is attended with an exacerbation of peritoneal irritation. When the closure is complete, and the infection sufficiently virulent the tube becomes a sac distended by its contents which may be serous, bloody or purulent according to the intensity of the inflammation. The tube is variously distorted—pear, gourd, bell or sausage-shaped. It may be perfectly free, attached only to the ovary about which it is wrapped, not infrequently with its abdominal end plugged by the adherent ovary, or may be matted together with everything in its vicinity making it difficult to recognize the topography of the pelvic structures. The adherent ovary in many cases takes part in the infective process, may break down and become a mere shell filled with pus. I have seen cases in which the infection has reached it through the tube with only superficial involvement of the latter and the infected ovary became an abscess cavity. In the early stages of infection not infrequently extensive barriers to further spread are formed and all the neighboring structures are bound together forming a distinctly palpable mass which causes the investigator to feel that function is thereby crippled, and sacrifice of the appendages necessary for restoration to comfort and health. Should such a patient fall into the hands of a surgeon who advocates in all pelvic inflammation prompt resort to operative measures, sacrifice will in the great majority of cases be found necessary.

To operate early in these infections means that the barriers erected against the progressive spread are broken down, and unless the infected structures are removed, further and even dangerous extension is a natural consequence. Unfortunately the limited number of beds allotted to gynecology in the majority of our teaching hospitals; the urgent desire upon the part of the patient to get back to her family, or resume her occupation, conspire to premature resort to surgery. Indeed, many cases would recover both health and function without the necessity of surgical measures in which their premature employment requires the removal of the appendages. We are accustomed, and justly, to regard gonorrhea as disastrous for the woman. Its baneful effects are numerous and far-reaching, placing in peril the life and health of the patient and visiting calamity upon her offspring, yet prudently managed function may be saved, or even restored when apparently endangered. The frequent recovery and subsequent successful pregnancies in women who have had pelvic peritonitis, readily recognizable masses occupying the situation of the ovaries and tubes when no operative procedure has been instituted, have demonstrated the importance of careful revision of this subject.

The results of surgery in pelvic and abdominal conditions have been so brilliant and so demonstrable that it requires moral courage and steadiness of nerve to turn one's back upon them and insist that neither saving of life nor restoration to health, which are praiseworthy, but preservation of function must be the paramount issue. How is this to be accomplished? The first consideration, is the early recognition of the infection, and full appreciation of the importance of the employment of prompt measures to arrest its baneful progress. Absolute rest, promotion of elimination, establishment of early immunity and perfect cleanliness are essential requirements. Too frequently when gonorrhea is responsible are the interests of the woman sacrificed to the desire to conceal its nature and origin. The neglect incident thereto not only affords opportunity for the spread of the infection, but the implantation upon the prepared soil of more virulent and destructive organisms. If the supplanting infection is supplied by the staphylococci or the coli communis the inflammation becomes self-limited, but with streptococci, it not only imperils the structures involved but places in jeopardy the life of the infected individual.

The work of Bedreska and his followers would seem to offer a method of shortening the course of gonorrheal invasion and arresting its baneful effects, but the short and uncertain course of the isolated gonococcus and the difficulties in its culture are well shown by Warden (J. A. M. A. Dec. 1915) to necessitate special knowledge and skill in its management. The precarious existence of the organism affords the greater hope of escape from its baleful influence under judicious management. This is most effectively accomplished by placing the infected woman in bed under the care of a nurse; the vagina irrigated every two or three hours with a carbolic (2 p. c.), bichloride (1-4000), or iodin (Lugol's) solution (M. 30, aq. 0). The douches should be given hot. The vulva should be kept clean and covered with a pad wet with a carbolic solution (3 p. c.), or a 20 p. c. solution of alcohol. The bowels should be evacuated with salines, plenty of water should be imbibed, and any indication of pelvic invasion should be met with the employment of cold in the form of ice bags over the abdomen.

The subsidence of acute symptoms as indicated by continual normal temperature and cessation of pain locally should be followed by substitution of hot for cold. Hot fomentations should be placed upon the abdomen and heat maintained by hot water bag or electric pad. The increased activity of circulation thus engendered promotes the destruction of the invading organisms, the absorption of exudation and the removal of inflammatory products. Where gonorrheal infection has been the foundation for the attack the local treatment may be more aggressive. The genital tract is kept scrupulously clean; the cervix exposed through a speculum; it and the vagina freed from mucus, painted with tr. iodin or a solution of silver nitrate (gr. x—fl. oz. 1), and the vagina packed with iodoform gauze to be retained 24 hours. In all inflammatory conditions of the pelvis pressure promotes the disappearance of exudate and the lengthening of adhesions. Resolution can be promoted by judicious massage, but should be limited to the cases free from pus accumulation. Even the existence of pus should not be considered an immediate indication for a sacrificial operation. Pus in the pelvis may be reached by vaginal incision when it has accumulated in the retrouterine cavity, or the heavy tubes have gravitated behind the uterus. Pus in this situation should be evacuated by a posterior colpotomy through which the tubes if accessible should be palpated, and if sacculated broken open. The cavity should be drained by a split rubber tube or a cigarette drain of gauze covered with rubber tissue. The vaginal incision should be chosen where it can be employed as it respects the erected barriers. Abdominal incision, even though the tubes contain pus, need not always demand removal of the affected structures. Recovery will frequently occur as my experience has demonstrated. The adherent surfaces should be separated, the ends of the tubes freed and where bloody pus or milky fluid escapes, the tube protected by gauze should be milked out by pressing along its course from the uterine to the abdominal end. I have thus forcibly evacuated the tubes and returned them into the abdomen, closed the wound without drainage to see an uninterrupted recovery.

In cases where operation reveals a tube closed at its abdominal end containing serum, or in other words forming a small hydrosalpinx, the tube should be incised longitudinally upon its convex surface near the end. The circular muscle fibres evert the mucosa and tend to maintain the opening.

In conclusion I would urge:

1. Operative delay in all pelvic infections combatting the inflammation by rest, cold, depletion, cleanliness and measures to establish early immunity to further invasion.

2. That operative procedures, where necessary, should be as far as possible palliative, preferably through the vagina.

3. That in abdominal exposure the structures should be preserved unless absolute destruction and extensive invasion exist.

RESECTION OF THE PARS-INTERSTITIALIS IN DISEASES OF THE FALLOPIAN TUBES, WITH THE VIEW OF PRESERVING THE UTERUS.*

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TO the thoughtful surgeon who follows his cases, one of the most difficult problems that gynæcology presents and one that must frequently be met is what to do with diseased Fallopian tubes. If their involvement has been recent, so that there is hope of recovery by vaginal incision and drainage, as suggested by Polk and Hunner; or if the tubes are found to be patent, so that a salpingostomy could be performed, it is, of course, the only procedure to be employed; but, on the other hand, if one or both tubes seem hopelessly diseased and their removal is considered imperative, it often seems advisable to take the uterus also, for the reason that: (1) after the amputation of the Fallopian tubes the stumps left in the wall of the uterus may be the source of a continued metritis and annoying discharge, and is frequently the site of an exudate or the cause of intestinal adhesions, with the danger then of obstruction in the bowel; or (2) without the Fallopian tubes the uterus is a useless organ which it is well for the patient to be rid of, since in the absence of the tubes it conserves no purpose.

Let us consider first the stump, as the source of continued infection. This stump in the uterine wall, or, to give it the technical name first employed, I believe, by Virchow, the pars-interstitialis, is the inner or uterine end of the Fallopian tube. It extends as a definite tubal structure from the uterine cavity, on the one hand, through the muscle wall of the uterus, emerging then into the abdomen to continue as the isthmian portion of the Fallopian tube. It has a longitudinal coat of muscle fibres, and an inner circular coat of muscle fibres, arranged in bundles about the lumen, where it joins the abdominal portion of the tube, and also circular fibres, although they are not so demonstrable, at the uterine end of the tube. These circular fibres, by constricting the pars-interstitialis, may make of it a pouch, which is thus more liable to retain purulent material and be a source of continued or latent infection.

This interstitial part of the Fallopian tube is the seat of a variety of growths which are usually classified as inflammatory or non-inflammatory according to their supposed origin. Whether there are new growths of epithelial origin, peculiar to the utero-tubal epithelium, such as the adenoma or adeno-myoma of Recklinghausen, and whether there are new growths here due to intrusion cells from the Wolfian body, has been the subject of considerable discussion, but it seems not unlikely that these growths as well as the polypi found here, the hydrops follicularis of Martin, and the salpingitis interstitialis nodosa of Chiari and Schauta, are all, as Chiari believed, late lesions due to an old gonorrhœal salpingitis. Certainly, the majority of recent infections found involving this portion of the tube are due to gonorrhœa, and it is the characteristic persistence of the gonococcus in the tissues and the pouch-like shape of the pars-interstitialis that causes it to be a source of continued infection after the amputation of the free portion of the tube.

That this is not always the case, is perfectly true. Many uteri do recover after resection of the tubes, but usually it is only after a long period of time, during which the metritis and leucorrhœa persist. Reynolds and Andrews have noted that when the Fallopian tubes have been amputated in gonorrhœal salpingitis, and the uterus left, that frequently not only has the endometritis been cured but that the infection in the cervix and in Bartholini's glands has cleared up also. This may be due not only to the recovery of the pars-interstitialis, with the absence then of an infecting secretion being poured into the uterus, but, as Beck of Chicago has suggested, in removing one tuberculous organ when there are several involved in the body, the immunity already developed, which before the operation was a minus quantity relative to the total infection, becomes now a plus quantity relative to the amount of diseased tissue left. We know now that gonorrhœa is a general pelvic disease, and after two-thirds of an infected tube has been removed it may be possible for the immunes in the body to care for the remaining infection; but we cannot hope that this will often be so, and it seems as unsurgical as Harris says to leave one-third of an infected Fallopian tube as it would be to leave one-third of a diseased appendix and trust to its recovery.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

It is, therefore, to cases of simple salpingitis and its accompaniments where the pars-interstitialis is likely to be involved, and not the body of the uterus, as in tuberculous salpingitis, that I would consider the resection of the entire tube to the cavity of the uterus.

The technic of resection of the pars-interstitialis of the Fallopian tube is simple, and consists of the following steps:

1. A preliminary curettage and disinfection of the uterine cavity is advisable.

2. A laparotomy incision, inspection of the adnexæ, and, above all, inspection of the ovaries, bearing in mind, as Watkins and Dührssen have said, that an ovary is seldom in such cases too involved to leave at least a part in the abdomen, and even if infected may be sterilized with carbolic acid and alcohol and left in situ; or, as Harris and Hunner advise, the ovary may be opened and drained by vagina.

If a double oophorectomy is imperative, it may still be advisable, especially in young women, to leave the uterus, for as Chipman and others have shown, the broad and ovarian ligaments frequently contain active ovarian parenchyma and have the capacity for regeneration of tissue.

3. The ligation of the ascending branch of the uterine artery below the tube. This is not essential to the operation but it gives a bloodless field.

4. With the uterus elevated and drawn to the opposite side, grasp the tube between the thumb and finger and excise it with a bistoury down to the mucosa of the uterine cavity. If there is any leakage from the end of the tube, it is of little importance, as the tissues have become accustomed to this infection. In one case of abscess localized in the pars-interstitialis I cut out the horn of the uterus with a Paquelin cautery at low heat, to sterilize the tissues, but this, I believe, is seldom necessary. If desired the incision may be made transversely across the fundus, excising a wedge of uterine tissue together with the insertions of the tube, as Dührssen recommended to cure chronic metritis; but when the sources of infection have been removed this would ordinarily be sufficient, for, as Harris and Hunner state, we do not often see a chronic gonorrhœal endometritis.

5. Care should be taken in making the resection of the tubes not to injure the insertions of the round and ovarian ligaments at the fundus of the uterus.

6. The wounds in the uterus may be closed by interrupted sutures in layers, as in Cæsarian section, and peritonized with vesical peritoneum, after the manner of Willis.

There is nothing original in this operation, except, possibly, the excision of the tubes by cautery. I employed the method first about eight years ago, when operating upon a patient with double salpingitis, because I was unwilling to remove the uterus as the patient was a young woman, and yet I was anxious to take all of the infected tubes. Since then, I have used this technic in twelve cases, the records of which I include, but the details I will omit.

Case I.—Mrs. D., February, 1908. Resection, pars-interstitialis, both tubes. Ovarectomy, right. Appendectomy. Recovery. Pathological report: Salpingitis.

Case II.—Mrs. A., February, 1908. Resection pars-interstitialis, both tubes. Appendectomy. Recovery. Pathological report: Chronic gonorrhœal salpingitis.

Case III.—Mrs. B., March, 1908. Resection pars-interstitialis, both tubes. Ovarectomy, left. Appendectomy. Recovery. Pathological report: Salpingo-ovaritis.

Case IV.—Mrs. S., April, 1908. Resection pars-interstitialis, right tube. Appendectomy. Recovery. Pathological report: Longitudinal section through the tube shows a fibrous growth at entrance of tube into fundus.

Case V.—Mrs. H., April, 1908. Resection pars-interstitialis, left tube. Ovarectomy. Appendectomy. Recovery. Pathological report: Acute on a chronic inflammation of the tube.

Case VI.—Mrs. T., July, 1908. Resection pars-interstitialis, right tube. Appendectomy. Recovery. Pathological report: Right tube atrophied at center.

Case VII.—Mrs. L., February, 1909. Resection pars-interstitialis, right tube. Appendectomy. Recovery. Pathological report: Chronic salpingitis.

Case VIII.—Mrs. M—R., March, 1909. Resection, pars-interstitialis, both tubes. Appendectomy. Recovery. Pathological report: Exudative inflammation of the tubes.

Case IX.—Mrs. O., April, 1909. Resection pars-interstitialis, right tube. Salpingostomy, left. Recovery. Pathological report: Salpingitis.

Case X.—Mrs. E., April, 1909. Resection pars-interstitialis, both tubes. Ovarectomy, right. Recovery. Pathological report: Fœtal convolution of the tubes; chronic salpingitis; cystic ovary.

Case XI.—Mrs. de A., June, 1909. Resection pars-interstitialis, both tubes. Appendectomy. Recovery. Pathological report: Gonorrhœal salpingitis.

Case XII.—Mrs. R., October, 1914. At the ampulla of the right tube, was a growth, size of a hazelnut. Tube amputated in the isthmian portion. The growth proved on section to be filled with purulent, cheesy fluid. In the pars-interstitialis of the left tube, was a nodule corresponding in size to that in right tube. The cautery at low heat was used to cut out the pars-interstitialis down to the cavity of the uterus. The mass contained purulent material similar to that in the right tube. Recovery. Pathological report: Chronic bilateral salpingitis and pyosalpinx.

In looking up the histories of this operation, I find that Schauta, in 1888, advised removing a wedge of tissue from the horns of the uterus in operating for salpingitis isthmica nodosa, and Dührssen, in 1898, published his method, as I have previously described it. In 1903, Stone, in the American Gynæcological Society mentioned excision of the horns of the uterus to be his "custom in all cases after salpingectomy." In 1909, Philander Harris, reported 150 cases where he had exsected the entire tube with its lumen to the uterine mucosa; 95 per cent of these patients retained menses, and probably 90 per cent returned to the menstrual habit which characterized menstruation prior to the infection. This I have found to be true in my own cases. Buettner, of Genf, in 1908, and Aubert, his assistant, in 1914, have reported thirty cases, with similar technic and similar good results. Doubtless there are others whose reports I have failed to find.

But granted that the operation is possible. Is it then worth while? This brings us back to the second question, viz., Is the uterus a useless organ after the Fallopian tubes have been removed?

The importance of ovarian influence on the physical development of the young girl is well known, and the importance of leaving at least a piece of ovarian tissue, especially before the menopause has occurred, is generally recognized, although owing to a tendency in such cases for the ovary to undergo an early atrophy or cystic degeneration after the removal of the uterus this may not always be practiced, still the influence of the ovary is recognized; but with the uterus it is an entirely different matter. After there is no hope of pregnancy, it is usually thought to be merely a matter of sentiment that makes a patient object to an hysterectomy, and she is told that she ought to be thankful to escape from the periodic discharge, although knowing that the activity and influence of the ovary decreases after the uterus has been removed.

The researches of Hitchmann and Adler in Vienna, of Clark, Frank, and others in this country, have thrown new light upon the histological changes which the uterine mucosa undergoes, not only during menstruation but throughout a definite cycle which occupies practically the whole month. Hand in hand with the cyclic changes in the uterine mucosa go corresponding changes in other tissues of the body. In normal menstruation these changes occur for the most part subconsciously and one can only realize how constant and universal are these changes when there is some fault in the intercorrelation between the different organs of the body and the utero-ovarian cycle. In such cases, manifestations of the beginning preparation for menstruation are noticed ten days or even two weeks before the onset of the flow, by sensations in the breasts and tonsils, swelling in the thyroid gland and in the genital spot of the nasal mucosa, headaches, backaches, constipation, nervous irritability, depression, etc. The more marked the derangement of the menstrual function, the more marked will these manifestations be and the more noticeable the nearer the approach of menstruation, for it is now a dual time, so to speak, in the utero-ovarian life; evidenced, as Van Ott has shown, in studying a series of cases of normal menstruation, by acceleration of temperature, pulse, and blood pressure, and an immediate drop at the commencement or just preceding the commencement of the flow. Vignes of Tarnier's clinic has recently described menstruation as "A de-intoxication of uterine tissue." This would seem to be in accord with the theory of Fraenkel that it is the casting off of the unused preparation of the preceding month and a re-sensitizing of uterine tissue. The role of the corpus luteum in exciting menstruation is a matter of hypothesis still. We do not know whether there is an internal secretion that acts directly upon the uterus—perhaps augmented by a secretion from the glands of the uterus itself—or whether, as Halban believes, a chemical substance is secreted in the ovary which through the nerves has a specific influence upon the uterine mucosa; or whether possibly a ferment is secreted which circulates through the blood.

In view of the widely different manifestations seen near the time of menstruation in organs far distant from the uterus, the theory held by Keiffer seems not without basis, and I will quote at length: "Cette élimination n'est ni une hémorrhagie, ni un épanchement, ni une simple extravasation, c'est une secretion. De même que les propriétés chimiques de l'urine révèlent le type nutritif des tissus éloignés du rein, de même, les qualités du liquide menstrual doivent refléter le chimisme des divers organes de l'individu. Il ne s'agit pas d'une fonction locale, inherente à l'uterus et à ses annexes exclusivement; la menstruation paraît être l'expression ultime excrémentitielle de phénomènes sécretoires internes se passant dans tout l'organisme."

Menstruation then, as Vignes expresses it, exercises "a therapeutic effect upon the health," for in normal menstruation there is with the occurrence of this function a feeling not only of relief from the general disturbances incident to the preparation but a sensation of well-being, of mental alertness, and buoyancy. The whole system has been planned for this periodic outlet, and it is absolutely essential to comfort and health for it is the balance wheel in the life of woman and after its loss it is only with difficulty that the system learns to readjust itself.

The importance of retaining the menstrual function has been recognized not only by those who have employed this technic in salpingitis but by others when operating for different conditions, notably Boldt, in removing double ovarian tumors, and more especially Howard Kelly, who, in 1909, in an article entitled "Amputation of the Uterus in the Corpus to Preserve the Menstrual Function," stated that he had adopted this method because he had found that "For some reason my patients have done better when menstruation has continued." Vineberg has recently published a somewhat similar technic, but tribute is due to Dr. William M. Polk who, in 1893, read before the American Gynæcological Society the paper "Operation upon the Uterine Appendages with a View to Preserving the Functions of Ovulation and Menstruation;" and before that same society six years earlier, the paper "Are the Tubes and Ovaries to be Sacrificed in All Cases of Salpingitis?" This was at a time when salpingectomy was being taught by Lawson Tait, and in the same meeting when Robert Battey of Georgia presented his then widely practiced operation of double oophorectomy. But Dr. Polk defended his position with rare courage, with a broad knowledge of pelvic surgery, and a deep discernment into the needs of his patients. I can close with no better words than he used in closing the discussion nearly thirty years ago.

"I say that the woman has the right to have the operation tested. None of the patients I have operated upon have died. * * * The operation is a simple one, and I can assert that it is efficacious. * * * My wish is simply to give the woman a chance to retain organs which she values if we do not."

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Discussion.

Dr. Harry S. Crossen, St. Louis: Just a word in regard to Dr. Polak's paper. First I express admiration for the doctor's laborious undertaking. It is just such work as that that gives a foundation for our future work. The second point is, that I wish to express astonishment at the easy readiness with which my friends Dr. Polak and Dr. Graves consign the ovaries to the scrap heap. I do not quite follow the logic by which they reach that conclusion. Of course, these patients may have a few more symptoms than another series of patients in which the ovaries have been removed but that is not the gist of the question. The question is, whether they have enough symptoms to warrant the sacrifice of the ovary. It is not only physical symptoms that must be considered, the pains that the patient has, but there is another side to that question and that is the psychic effect.

Taking it as a general thing, I feel that the preservation of the ovary is well worth the chance of a secondary operation, provided we can narrow that chance down by just such work as the doctor has reported, by finding just what class of cases we have to reoperate and just what class we do not. When it comes to the latter class, I feel that the patient that has a few symptoms had better have those symptoms than lose the last ovary.

Dr. Hiram N. Vineberg, New York City: The point of great interest to me in Dr. Polak's paper is the one in reference to when the uterus has been removed whether the ovary should be retained or not. I think the last speaker did not catch that point in Dr. Polak's paper. It was not when the one side was removed and the uterus was left that the other ovary should be sacrificed. If I understood it rightly, it was when you had to do a radical operation and had to remove the uterus and both tubes, the question came in there then whether to leave a portion of that ovary or not, and my experience thoroughly coincides with Dr. Polak's that those patients in which you have to do such an operation are much worse off if you leave a portion of the ovary, that that portion of the ovary will not function at all in a very short time, and under the most favorable circumstances it is liable to undergo cystic degeneration. One who has had to operate on these ovaries that have been left behind and become cystic will realize the difficulties and will try to avoid it even if it is one time in twenty or thirty cases.

I thoroughly agree, then, with the position of Dr. Polak, which coincides with my experience, when you are doing an operation of that magnitude, it is best not to leave a portion of the ovary with the theoretic consideration that it may relieve the menopause symptoms. That is the result of my studies and my experience.

I also believe that when removing a fibroid uterus and leave one or both ovaries behind, you should leave enough uterine tissue so that the woman can go on menstruating. Then I think both functionally and morally you are doing that woman good. But if you have to remove all of the uterus, I question very much whether the retention of the ovary, of one or both, helps very much to relieve the menopause symptoms, or benefits her in any way.

Dr. Thomas J. Watkins, Chicago: I would like to ask Dr. Polak about the question of variety of organisms, because in only a very small percentage of cases have we been able after operating to say what the variety of infection has been, because these patients are not operated during the acute period. Now the study of the vaginal bacteria in those cases is practically of no use in determining the variety of infection. For the last two years Dr. Curtis, who is associated with me, has been grinding up the tissue removed in these cases and getting growths from that ground up material, and after using the greatest care against contamination and still in only a very small percentage of cases are we able to say what the bacteria is.

A mistake is made in calling too many of these cases gonorrheal infections. The variety of streptococcus infection that has been prevalent in the throat, mouth and ears this year, has given an increased number of infections through the blood. We have had two cases of acute salpingitis apparently secondary to streptococcus infections of the throat.

We are very much impressed that all the knowledge that has been gained from the treatment of tuberculosis should be utilized in the treatment of acute pelvic infections. In fact, the outdoor treatment is as much more important in the treatment of acute pelvic infections than in tuberculosis, as is one more acute than the other. The statements that have been made here today, about the removal of the ovaries, has been a great surprise to me.

I had supposed that that question had been settled; that the correlation between the corpus luteum, the thyroid, the placenta and other ductless glands had been so well established, that one very much hesitated to do anything that would interrupt that change of inter-relations of secretions. We have not removed all the ovarian tissue in any case for a long time with *very* few exceptions. I believe, in the last two or three years we have not been called upon to remove any ovaries as a secondary operation. We have not hesitated to dissect an abscess out of an ovary and leave part of it. In large ovaries it has been our practice to take out a very considerable part of the ovary by a wedge-shaped incision, leaving enough of the ovary about the ovarian ligament to preserve menstruation.

Formerly we saw a large number of cases of neurosis where the ovaries had been removed. It seems latterly one very seldom encounters such cases. One occasionally finds an enlarged ovary post operative, a cystic ovary, and I believe it is very seldom advisable to remove these ovaries, they take care of themselves. It seems to me it is very bad surgery to advise immediate operation upon any of those cases. I quite agree with Dr. Polak and Dr. Farrar about the question of leaving the uterus where both tubes have been removed. Each case should be considered individually. It is an error to leave such a uteri if menorrhagia and leucorrhœa result.

Dr. E. MacD. Stanton, Schenectady: The question of the cystic degeneration of the ovaries following pelvic operations has been raised here this afternoon. I want simply to state my own experience which I have previously reported in an analysis of 100 cases read last fall before one of the branches of this Society. All were private cases and all had been traced for several years following the operation. There were sixty-seven cases in which one or both ovaries were left and thirty-three in which both ovaries and tubes were removed. Of these sixty-seven there were only three in which the factor of cystic degeneration of the ovary played any part whatever in the subsequent symptoms, and only one of these three in which I had any thought whatever of removing the ovaries by a secondary operation. As a matter of fact, the other two as in the cases mentioned by Dr. Watkins a few moments ago cleared up in a short time without any special treatment at all.

The whole question as I have worked it out myself is a question of leaving the ovary absolutely alone. The surest way I know of to get a cystic degeneration of any ovary is to take a normal ovary in which nothing is wrong at all and monkey with it a little, tack it up or suspend it or do something with it which puts it in an abnormal condition and it will very probably become cystic or painful and it may or may not recover as time goes by.

Now as regards the comparison of the sixty-seven and the thirty-three cases in that group of real salpingitis cases there is no question whatever in my mind but that if I were a woman of the average age of which these patients are when they come to these operations, I would take my chances on the very rare possibility of a secondary operation rather than to lose all my sexual organs at the first operation.

Dr. J. O. Polak, Brooklyn: In answer to Dr. Watkins' question regarding the bacteria found, I will say that very few of these cases showed any bacteria at the time of operation. When determining the variety of infection, we have learned not to depend so much on the bacteriological findings, three, six, or nine months after the original infection, as on the clinical course, and the location of the lesion as has been brought out by Dr. Crossen.

If you will remember, my associate Dr. Hyde analyzed three thousand cases of tubal infection and found that the gonococcus was absent in the majority of instances about six weeks afterward, and was practically never found three months afterward. Furthermore, regarding Dr. Watkins' criticism, I would say that we have found that there is some difference between the conservation of an ovary in the absence of infection and conservation of the ovary in the presence of infection. I am dealing in this paper with the results of ovaries in the presence of infection, after a long period of conservative treatments has been carried out, and I have tried to compare the results. Yet it is interesting to note, if you will recall, I reported four hundred cases of conservation of the ovary before the American Medical Association at Atlantic City, seven years ago. With forty-two reoperations for cystic degeneration. The ovaries that we have in Brooklyn or at least in my part of Brooklyn, do not regenerate in bad environment quite as well as some of Dr. Stanton's cases.

He has misconceived our stand; we make this one definite statement: that where we can preserve both ovulation and menstruation we go to the limit to do it by leaving the lower segment of the uterus—and as much ovarian tissue as possible—and I have done this now in enough cases to feel that I can do it without a morbidity or mortality—at first I had a morbidity because I did not understand the blood supply, and our patients are coming out with menstruating uterus and a free pelvis—but where we have to add the result of gross lesions to a hysterectomy, I am absolutely convinced that the retained ovary has no value to that individual woman.

Dr. Lillian K. J. Farrar, in closing the discussion of her own paper said, that in considering operative measures we are apt, as Dr. Crossen said, to forget the patient's standpoint. No one likes to bear the reflection that comes when a secondary operation is necessary, but many a patient would be willing to take a reasonable chance of a secondary operation if she felt that in doing so the pelvic tissues could be left in a fairly normal condition. In this connection I would like to quote a remark once made by Dr.

Watkins in reference to leaving ovaries in the pelvis, even when there had been suppuration. He said: "I feel better able to deal with a stormy surgical convalescence than with a stormy surgical menopause."

Dr. Frank F. Simpson, Pittsburgh, Pa.: I have been very much pleased to hear this clear, concise and conservative presentation of one of the most important subjects which confront gynecologists today, and I may add those general surgeons who are constantly invading the pelvis. I believe the one thing which has meant more for the real advancement in the treatment of inflammatory troubles than any other one, has been that step, gradually developed through many years by many gynecologists, of deferring operations until the acute attack has completely subsided. That definite, well-planned course means true conservatism. It very often results in the prevention of operations, in the saving of structures when operation is required, and in the reduction of operative mortality.

Those of us who were working twenty-five years ago recall the fact that at that time operations were done nearly as soon as the patients came to the hospital, with the idea that they would die unless rescued by immediate operation. Of course that is an exploded theory. All competent gynecologists today recognize that with the very practical line of treatment which Dr. Montgomery has so carefully presented this afternoon, the mortality of the acute disease will be reduced to less than one per cent. The high mortality of twenty years ago was due largely to the activity of bacteria which were present at the time of the operation. These organisms are just as virulent today as they were twenty years ago, and if we soil peritoneal surfaces with them today, infection will be just as certain and just as serious as it was twenty years ago.

The death rate will be correspondingly high. One is therefore surprised to see an occasional article such as one recently published by a well-known surgeon, referring to the so-called advantage of operations during the acute attack.

Of course all in this presence recognize the mistake that is made in that instance, doubtless, of placing on the same plane the underlying pathology of the appendix on the one hand, and the infection of the tube on the other hand. I could not emphasize too strongly the extreme wisdom of avoiding operations until the inflammatory exudate has been completely absorbed. The presence of even a trace of exudate, in my judgment, is Nature's positive declaration that there are present virulent organisms which she fears to admit into the general circulation. If nature fears to admit them into the circulation, we certainly should not spread them on a fresh peritoneal surface.

I believe that by strict adherence to that rule one can easily reduce the operative death rate to less than one per cent. in inflammatory conditions of the fallopian tubes and other pelvic structures.

Of course the foregoing remark should not be interpreted as referring to, much less criticising, the universally recognized and very wise procedure of opening such frank abscesses as can be evacuated without traversing a free serous cavity.

INTESTINAL OBSTRUCTION IN CHILDREN, WITH SPECIAL REFERENCE TO INTUSSUSCEPTION.*

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Anything which arrests the fecal current must be considered as a cause of intestinal obstruction; for this reason the following classification is used:

1. *Congenital Obstruction.*—(1) Imperforate anus. (2) Intestinal occlusion or stenosis. (3) Volvulus due to torsion of the umbilical cord or to inflammation of the mesentery. (4) Bands.

2. *Acquired Obstruction.*—(1) Intussusception. (2) Strangulation; (*a*) Hernia, external or internal; (*b*) Omphalomesenteric remains; (*c*) Bands; (*d*) Adhesions. (3) Volvulus. (4) Obturation; (*a*) Enteroliths; (*b*) Tumors; (*c*) Foreign substances. (5) Pressure obstruction, e. g. by displaced organs, tumors, etc. (6) Intestinal paralysis. (7) Infarction of the mesenteric vessels.

Of the congenital varieties of obstruction, those in the anal or ano-rectal region occur most frequently. They are easily recognized and are often amenable to surgical treatment. The congenital obstructions higher up in the intestinal tract are more difficult of recognition and are practically always fatal. If we exclude intussusception, the acquired types of obstruction in children are relatively rare. We have encountered one case of mesenteric thrombosis in an infant, with eighteen inches of gangrenous obstructed jejunum; one case of acute angulation and obstruction, caused by a congenital band running from the head of the cecum to the jejunum; one case of plum stone impaction producing obturation obstruction, in a small girl who had eaten heartily of plums and had swallowed the stones; also a case of pressure obstruction, from an abdominal abscess, probably arising from a suppurating mesenteric gland.

Aside from the mere mention of these rare forms of intestinal obstruction, our effort will be devoted to a consideration of intussusception, which is peculiarly an affection of childhood. While it may occur at any age it is essentially and pre-eminently a disease of infancy and early life. Seventy per cent. of all cases occur during the first year of life. In acute intussusception, the clinical picture is clear-cut, uniform and characteristic, making it one of the easiest of the abdominal affections to diagnosticate. The mortality is insignificant in cases recognized early and treated promptly and properly; on the other hand if untreated or improperly treated the mortality is disgracefully high. No other surgical disease of the abdomen is so fatal. In spite of these facts, no other serious abdominal disease is more often unrecognized and more frequently mismanaged and maltreated. The mortality in this disease is for the most part the "mortality of criminal procrastination" (Murphy).

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While no text book description will be attempted, it is necessary to mention some of the essentials of intussusception. It is the invagination of one segment of intestine into another, bringing about an obturation obstruction. In addition to the obstruction there is often strangulation of the mesenteric blood supply, which adds to the gravity of the condition. Anatomically the invagination may occur in the small intestine (enteric); it may involve both the small and the large intestine (ileo-cecal or ileo-colic), or it may be confined to the large intestine (colic). In fully seventy-five per cent. of cases the invagination develops at or near the ileo-cecal junction. It may be either single (simple) or multiple (compound).

In infancy, the acute form of the disease predominates. As a rule a healthy, well-nourished infant is seized suddenly with severe abdominal pain, with more or less pallor, shock and relaxation. Vomiting usually occurs at this time. Later there is straining, and blood and mucus appear in the stools. When an abdominal tumor can be palpated, one is reasonably certain of the diagnosis. After the first storm of pain is over, there appears a period of calm, during which the infant may appear perfectly well. The pain returns, however, is often of an intermittent paroxysmal nature, is accompanied by rythmic straining but not by the pallor and shock which ushered in the initial seizure. If the infant is seen during the "calm" period, unless the history is carefully considered, the diagnosis is apt to be overlooked. Muco-hemorrhagic stools commence in from two to twelve hours after the onset of the disease. After one or two movements they contain no feces or bile, and flatus is not passed. Vomiting generally accompanies the first seizure of pain and may return whenever water or nourishment is administered, but it is rarely a prominent symptom until late in the disease. When it occurs early and persists, in spite of the withdrawal of liquids, it is a symptom highly significant of strangulation of the blood supply to the bowel, and of early gangrene. Fecal vomiting is rare.

In every case of intussusception there is present an abdominal tumor, but it is often difficult to palpate. Early in the disease, when relaxation and flaccidity are the rule, the abdomen may be examined with ease. Later, owing to rigidity and straining but seldom to distention, palpation is unsatisfactory unless the examination is made under anesthesia. The typical sausage-shaped tumor of the text-book has been too much emphasized. It is rarely felt early and when present, means that the intusssusception has developed to a considerable extent. More often, a rounded mass is felt, and it may occupy any portion of the abdomen. It is generally quite movable and may resemble an enlarged gland. Where the tumor is oblong or sausage shaped, it is curved, with the convexity directed toward the umbilicus. The mass may occasionally be felt to contract. If the tumor cannot be felt abdominally, then a bimanual rectal examination should be made in every suspected case. Under anesthesia one seldom fails to discover its presence. Clubbe in an examination of 173 cases failed to find a tumor in but two instances.

In the beginning of the attack, the severity of the symptoms (pain, vomiting, muco-hemorrhagic stools, etc.) depends upon the degree of strangulation rather than on the fact that the bowel is obstructed. Later, in addition to obstruction and strangulation, toxemia develops as a result of injury to the bowel wall (particularly the mucosa) and from decomposition of the intestinal contents. The late picture is that which occurs in every variety of acute intestinal obstruction. Occasionally the symptoms are less acute, and particularly this is true in older children. There may be no strangulation of the mesenteric vessels and bowel obstruction may not be complete.

Differential Diagnosis.—Differential diagnosis presents little, if any, difficulty in the intussusception of infancy. Illeocolitis (acute dysentery) and the purpuric diseases have occasionally been mistaken for intussusception. In the former, there is fever and diarrhea, with mucus and blood. The stools contain bile and feces, and flatus is passed. No abdominal tumor is present. In the purpuric diseases, which, by the way, are rare in infancy, hemorrhage from the intestine may be a symptom. Hemorrhage elsewhere, however, gives the clue to the diagnosis. It must not be forgotten, however, that intussusception may develop as a complication of these diseases. Several cases have been reported as coming on during the course of Henoch's purpura. In these cases the diagnosis rests on the finding of the characteristic tumor of the intussusception. In any doubtful case where the symptoms are not urgent, a bismuth mixture may be injected into the colon and an x-ray picture taken.

Unless intussusception is recognized early and treated promptly, the result is nearly always fatal. By hydrostatic pressure, together with posture and manipulations, disinvagination may be accomplished in a limited number of cases. The relative futility of such treatment is not sufficiently appreciated. It can and does succeed but rarely, but it is often persisted in until the time for a successful operation has slipped by. The safest, the most successful and the only certain method of treatment in intussusception is early laparotomy, with manual reduction of the invagination. The operation should be performed as quickly as is consistent with safe and thorough work, for infants do not bear prolonged operations well. As three-fourths of all cases originate in the ileocecal region, the incision, with its center slightly below the level of the umbilicus, should be made through or to the outer margin of the right rectus muscle. Some operators prefer the median incision when the tumor is felt low down on the left side. To accomplish disinvagination, it is best to commence at the apex of the intussusception, and to push rather than to pull out the intussusceptum. If traction is made on the proximal end, the gut is apt to be torn at the neck of the intussuscepiens. If gangrene has occurred or if reduction is impossible, resection and intestinal anastomosis should be performed. In all early operations, especially where the invagination occurs in the ileocecal region, is a good plan to remove the appendix, for it may, in certain instances, be a causative factor in the production of the obstruction.

After operation, lavage of the stomach and colon, an abundance of water and of alkaline waters to overcome tissue dehydration and to stimulate the emunctories, the avoidance of opium, and the administration of appropriate stimulation are the measures best calculated to combat the toxemia and to bring about a successful issue.

Of about forty cases of intussusception seen and studied by me, twenty-five have been under my personal care. In my series there were sixteen males and nine females, ranging in age from six days to three and one-sixth years. Twenty-four were infants. One late case died an hour after admission to the hospital before any operative measures could be instituted; another late case died on the operating table, just after the abdomen was opened, in the beginning of an attempt at disinvagination. A triple irreducible gangrenous intussusception was removed postmortem. In nine cases the intussusception was either gangrenous or irreducible or both necessitating resection or enterostomy, with eight deaths and one recovery. (The successful case was reported in detail in the *Medical Record,* March 5th, 1905.) In fourteen cases in which manual reduction was possible, after laparotomy, there were three deaths and eleven recoveries. The three fatalities were in late and profoundly toxic cases. Every case seen within forty-eight hours of the onset of symptoms recovered. There were eight in this group. The average time from the onset to operation in the twelve successful cases was fifty-four hours. In this group of twenty-five cases but four were seen early; that is, within the first twenty-four hours of the obstruction. In a few instances no diagnosis had been made. In the majority of cases, however, it was only after the failure of medical treatment and mechanical measures to reduce the invagination that the little patients, as a last resort, were sent to the hospital for operation. The fatal cases were all brought in late and, for the most part, were considered hopeless, but none was refused operation.

Of twenty-three infants developing intussusception during the nursing period, but one was artificially fed. All gave more or less typical histories and presented the characteristic symptoms. In no suspected case was an error in diagnosis made. In twenty-four of the twenty-five cases an abdominal tumor was palpated. As to the anatomical division of the intussusceptions, there were nineteen of the simple, ileocecal variety, one colic, and five of the compound type (ileo-ileocecal). In but one instance was there an unmistakable etiological factor in the production of the invagination. A congenital adenocystoma of the cecum was discovered in an infant six months of age. In several cases it was our opinion that the appendix was at fault. In two cases where the invagination started several inches above the ileocecal valve it was thought that an inflamed Peyer's patch might have been the disturbing factor. Enlarged mesenteric glands in the ileocecal region were frequently encountered but were thought to be the result rather than the cause of the trouble.

In conclusion the following points should be emphasized:

1. Intussusception in infancy presents a rather uniform and characteristic picture and should be recognized without difficulty.
2. Aerohydrostatic and mechanical measures can succeed in but a limited number of cases. Such treatment is not without danger.
3. Early laparotomy, with manual reduction of the invagination, is the simplest, the safest, and the most successful method of treatment.

INTESTINAL OBSTRUCTION.*

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THE cause of death in intestinal obstruction has of late been the object of many experiments. The facts are that intestinal obstruction in man, if unrelieved, speedily ends in death. The end is too rapid to be due to starvation. Much light has been thrown upon the subject through the laboratory experiments upon animals of Murphy, Vincent, Hartwell and Hoguet, Draper, Whipple, Stone, Bernheim.

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Three theories have been discussed:

1. That death is due to disorder of the nervous mechanism controlling the cardiac and vasomotor systems, causing tachycardia, low blood pressure, collapse and wide dilatation of splanchnic blood vessels. Those symptoms point to loss of activity of medullary centers but exactly this train of events may arise from toxemia or bacteremia without efferent nerve impulse. Some observers have drawn a parallel between gradual fatal bleeding and death from intestinal obstruction.

There is a loss of fluids from failure of absorption, an enormous flow of fluids into the intestine and persistent vomiting leading to dehydration of the blood and to cerebral anemia.

No competent observer now holds to the theory that death in intestinal obstruction is due to a disturbed nervous mechanism.

2. The theory of bacterial infection is more worthy of belief; the intestine swarms with germs potentially pathogenic. With an obstruction the intestinal bacteria are no longer expelled through the anus. They are retained in the intestine under circumstances highly favorable for their growth.

Damage to the mucosa from jamming of the gut permits their absorption into the blood stream, lymphatic or peritoneal cavity.

It is a well known fact that peritonitis may occur in obstruction, and also in typhoid ulceration without perforation.

There is no doubt that in intestinal obstruction bacterial invasion of the blood is a late terminal symtom.

3. Intoxication theory.

All recent observers agree that death is due to a very active toxin; that the amount of damage done to the mucosa determines the severity of symptoms; the tight construction of the gut causes edema from obstruction and venous stasis from gas distention.

In intussusception, strangulated hernia and volvulus, the mucosa is often seriously damaged, causing death if the obstruction is not quickly released.

In searching for the source of the poison Hartwell accepts three possibilities:

1. Food-stuff or substances derived from them.

2. True bacterial toxines.

3. Secreting substances from the alimentary tract and glands.

None of Hartwell's experiments absolutely exclude a bacterial toxin which might develop in the occluded gut.

Clinically a high obstruction produces death more rapidly than a low obstruction although bacteria are more numerous in the lower bowel.

Roger and Garnier found the most toxic substance in the duodenum, the least in the colon.

V. Baracz found that dogs with a double occlusion of the lower ileum and cecum might live for weeks. The contents of the loop contain a moderate quantity of material rich in bacteria. His cases seemed to point to the conclusion that stagnation of bacteria and their toxins is not sufficient to cause the symptoms of intestinal obstruction.

Considering stagnated food-stuff and the pent up glandular secretions of the stomach, intestine, liver and pancreas as a possible source of the poison, Hartwell made many experiments in dogs.

He sectioned the duodenum and closed the ends by inversion at varying distances, 10 to 48 cm. from the pylorus.

The animals were operated on at varying periods after eating. None were fed after operation.

There was a lack of correspondence with the results. One dog who ate a full meal six hours before operation lived 116 hours; one who had fasted for seventy-two hours lived only fifty-five hours. The dogs were given water before and after the operation.

All recovered promptly from the operation and vomited only when given water. They had no abdominal distention, cramps or colic.

At autopsy there was no peritonitis. The gastric and intestinal mucosa showed severe congestion.

It was thus determined that animals with a high obstruction might live five to seven days; that the length of life was not dependent on the food residue above the obstruction, and that the autopsy gave no gross evidence of the cause of death.

Hartwell then remembering there might be a direct relation between the severity of the operative damage to the mucosa and the violence of the symptoms, devised an especial clamp, which would produce a complete obstruction without cutting the gut or damaging the blood supply. Four operated dogs were given sterile water by mouth. All water swallowed was vomited; others were given 150 to 300 c.c. sterile salt solution per day, subcutaneously or by rectum. These animals lived longer than the others.

This procedure proved very beneficial. The saline may have acted in two ways; by preventing a dehydration of the tissues or have acted as a diuretic eliminating poisons.

The average length of life in this series was 169 hours against sixty-seven hours in the series where the duodenum was sectioned and inverted, but the first series were given saline infusions.

Hartwell estimated the amount of fluid vomited and passed in the stools of dogs with an artificial intestinal obstruction and found if 150 to 200 c.c of a normal salt solution more than the fluid lost by emesis and purgation in a day were given subcutaneously life might be prolonged two or three weeks. If 500 c.c. of fluid were lost by vomiting and diarrhœa in a day, he gave 650 to 700 c.c. salt solution in a day.

Hartwell is the only experimenter who worked by producing an obstruction without damage to the intestinal wall.

Clinically with a strangulation imposed on an obstruction, the condition becomes terrifically acute.

Vincent and Murphy as a result of their experiments conclude that interference with the circulation of the obstructed gut is the vital factor in producing the symptoms of ileus.

Autopsies on the experimented animals showed congestion and cell infiltration of the mucosa, congestion of the liver, kidney, pancreas, and spleen. These changes are seen in many forms of toxemia, such as starvation, pregnancy, and delayed chloroform poisoning.

Hartwell then eliminates the bile, pancreas and duodenal secretions as a source of the poison, by various operations. He caused the stomach to empty into the jejunum, and the bile, pancreas and duodenal excretions to pass into the jejunum below the stomach contents. Wherever the gastric juice, unneutralized by duodenal secretion, came in contact with the intestinal wall there was much damage.

One of the functions of the intestinal mucosa is to alter the substances which pass through it, so they are not toxic to the organism.

The changes in the structure of the mucosa deprive this membrane of its protective function, and in consequence the toxic substances enter the blood in their poisonous condition.

If the damage to the mucosa is great, as in double occlusion, the poison enters the system rapidly, and the disease is short.

If the damage is less severe, as in simple obstruction, where the poison fluid can be vomited, the disease is longer.

Therefore, changes in the intestinal mucosa, proximal to the obstruction, explain the cause of death in intestinal obstruction.

The retained gastric juices are irritating. There is mechanical damage from distention; the poisons present in the stomach and intestines enter the blood through the damaged mucosa and work injury to the liver and kidney.

If the intestinal mucosa is intact, life with the aid of saline solution may be much prolonged.

Any mechanical damage to the intestinal wall hastens the development of symptoms and death because the defenses are broken down.

In one dog a clamp was applied to the pylorus. On being given saline injections he refused water and lived in good health for fifteen days.

Summing up Hartwell's finding, we find:

1. A high intestinal obstruction from 10 to 30 cm. from the pylorus may not produce death for 10 days provided gut wall is not damaged. If the gut wall is damaged by section and inversion, the average duration of life is much shortened.

2. There are found in the liver and kidney, cellular changes similar to those found in toxic diseases. The intestinal mucosa was found damaged to such an extent that it had probably been deprived of its natural defense against toxic substances.

3. Bacterial invasion of blood does not necessarily occur.

4. Dogs deprived of food forty-eight to seventy-two hours may die as early as those fed ten to twenty hours before obstruction produced. Decomposition of food stuff is not an element in causing death.

5. The actions of the gastric juice, bile, and pancreatic juice, and duodenal secretion are not necessary in producing symptoms and pathological changes seen in intestinal obstruction, because these are produced by a double occlusion of the upper ileum, where none of these secretions are blocked.

6. Simple occlusion of the pylorus may not produce a toxemia in two weeks. The gastric mucosa is not damaged by this procedure.

7. Death in intestinal obstruction in dogs results from presence of toxic substances in the circulating blood which cause fatal lesions in the kidney and liver. The essential factor which admits these substances to the blood is an injury to the lining cells of the mucosa. This injury is caused by the stagnating contents and also the mechanical damage from stretching whether the source of the poisons is from bacterial activity or secretory activity of digestive glands. They are innocuous as long as the mucosa is intact.

Whipple, Stone and Bernheim give a very interesting study of a toxic substance produced in closed duodenal loops. They dismiss the idea of the importance of bacterial activity in the general circulation or in the peritoneal cavity, but do not exclude bacterial activity in the intestinal lumen. Their few experiments with closed loops of ileum show that the contained substance is only slightly toxic.

The use of a closed washed duodenal loop does away with the confusing factors of bile, pancreatic, and gastric juice, and proteid digestion.

The effect of a closed, washed duodenal loop is to produce death in one to three days with low blood pressure and temperature and venous congestion. It may be compared to a volvulus with no vascular disturbance or food products to disturb the clinical picture.

In the loop is formed a toxic substance which gives a characteristic picture when introduced into a normal animal of like specie. They believe that the intestinal epithelium is necessary for its production and that dogs immunized by this toxin live three times as long with a closed duodenal loop as animals untreated.

Operative detail: Duodenum is isolated by ligature placed below the pancreatic duct and at the beginning of the jejunum.

The dogs with closed duodenal loop died with symptoms like those of volvulus or high intestinal obstruction. They lose considerable fluid by vomiting and diarrhœa, have a weak pulse, low blood pressure and temperature characteristic of last stages.

Autopsy shows more or less splanchnic congestion most marked in the mucosa of the upper small intestine; the mucosa of the loop may show ulceration or even perforation, but in the majority of cases it is intact, and exhibits only a moderate congestion.

The loop may be distended with a clear fluid or contain only a small amount of pasty brown material.

Experiments with duodenal loop fluid intravenously; death in four hours.

The fluid was strawberry colored and thick. It was washed into a beaker with distilled water and allowed to undergo autolysis; supernatant fluid passed off, heated to 60° C., centrifuged and filtered.

40 cc. of fluid injected intravenously in small divided doses caused death in four hours. Autopsy showed mucosa of large and small intestine congested.

All experiments with this fluid show it highly toxic; the animal is severely shocked, develops vomiting and profuse diarrhœa with a slow, deep respiration.

Other experiments show that the toxic substance from a closed duodenal loop causes fatal symptoms in a normal dog, whether introduced into the portal vein, peritoneum or subcutaneously; the intestines secrete a large amount of fluid and there is always severe congestion of the mucosa of the duodenum.

The authors conclude by stating that there is no escape from the conclusion that a poisonous substance is formed in this closed duodenal loop, which is absorbed and causes death.

Injection of this substance into healthy dogs gives an intoxication and a reaction more intense than in the operated animals.

The experiments detailed above seem to show:

1. That death in intestinal obstruction is not due to starvation or bacterial activity.

2. That a toxic substance is exuded from the injured mucosa of the duodenum which causes lethal symptoms.

3. That life may be much prolonged by replacing the fluids lost by vomiting and diarrhœa through subcutaneous salt infusion.

4. That if in intestinal obstruction the mucosa is uninjured or only slightly so, the symptoms are less serious or acute.

5. That the fluid from an intestinal obstruction, caused by a closed duodenal loop, injected intravenously into a normal dog causes death with the same symptoms as are seen in an actual intestinal obstruction.

THE SURGICAL TREATMENT OF INTESTINAL TOXEMIA.* †

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IMPRESSED by the striking analogy between the mental attitude of certain members of the medical profession and that of the reactionary element in civic governments we quote from a recent paper by the Earl of Mar in the last *Scottish Review* as follows:

"Nowadays the race is not so much to the strong as it is to the impressionable and nimble of mind. The mind that is destined to succeed in the world must be as open to impression as the oyster is to the sea. Groove must be avoided quite as carefully and scrupulously as the plague. The individual who wishes to compass a prosperous journey through the world must set out with eyes fully skinned. *We must be alive to example and susceptible to change.* We must be prompt to recognize that existing conditions are not necessarily the best that can be devised and that a torpid state of mind and habit of body in face of the march of events is the very best passport to failure.

"Born into a world whose pivot is change and decay the man of crystallized ideas is as little sensible of the genius of physical nature as he is of the fluctuations of fate and fortune in the institutions of which he is a part. He imagines that the particular institution to which he belongs is destined to endure for all time in spite of the many solemn warnings addressed to him by history. And, as for understanding the aspirations of those whose viewpoint differs from his own he will have none of it, nor does he wish to acquire it."

How aptly these words from a great lay pen coincide with those of the scholarly Moynihan, who discussing intestinal toxemia says, "nothing is worse than sloth of the imagination."

Equally significant is this quotation from Draper's Intellectual Development of Europe: "Is there an object presented to us which does not bear the mark of ephemeral duration? We fail to find anything that is not undergoing change. Forms are in their nature transitory, law is everlasting."

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Why cannot we as a student body take unto ourselves the words of these great teachers and assume an open-minded attitude toward this newer problem of medicine. Surely our history is replete with examples of the fate of those pioneers who found and taught the truth in face of orthodox opposition, and the point for us to face squarely is that even to-day and in our own profession the ultra-conservative rides the saddle while the progressive walks. In our circumscribed sphere we act the parts which we see others acting in the greater drama of life. Everywhere: in politics or in profession; from the cradle to the grave the immutable law governing human beings; doctors, priests, lawyers, legislators, ordains that all must be either conservative or progressive; reactionary or idealistic.

Let us review this entire question of intestinal toxemia and try to analyze the various theories so far presented. By way of illustrating the antiquity of the subject Stich, in 1853 and no doubt others before him, evidently striving to get an insight upon intestinal toxemia injected feces from the same and from other animals into the rectum and veins in an effort to prove the old and erroneous hypothesis that all evils arose from fecal absorption. Bouchard in '82 showed that feces contained alkaloids and recognized that some were soluble in $CHC1_2$—others in ether. Among the many other students of this subject, Metchinkoff, Roger and Combe stand out prominently. The first championed the bacteriological, the second the bio-chemical, while the third correlated all that had been done and crystallized it into a form of medical treatment. Lane, seeing this work from the viewpoint of a surgeon who in his time was more or less of a mechanic and influenced chiefly by Metchinkoff's theory and presuming that all intoxications were due to a "static" condition, set about to apply his mechanical genius to the restoration of "drainage." Surgeons plunged headlong into this fantastic procedure and regardless of physiological objections proceeded to short-circuit all patients suffering with headache and constipation. Lacking the mechanical genius of Lane, the technic was often defective; lacking his discrimination the diagnosis was often wrong. What was the result? Lane has been damned and misunderstood, whereas in reality there was much of merit in his viewpoint. After the excitement had died down, Adami in a hypercritical and erudite paper brushed aside much of the previous work; presented his theory of sub-infection and concluded that the importance of the subject had been overestimated. Under the stimulus of Sir A. Wright arose the School of colonic vaccinists. Like many other methods vaccine therapy has great merit as attested by the reports of Satterlee.

After another lull, Kellogg and Case noting an associated insufficiency in a percentage of their cases concluded that they has solved the Mosaic problem of leadership. Now while no one can deny that valvular insufficiency is probably not physiological and that dire results may follow a mixing of the contents, it is probably but one of the many sides to the question of intestinal toxemia and one easily demonstrated. It occurs frequently in subjects seemingly healthy. Maybe they are not. Did Case fully grasp the significance of ileocecal insufficiency. Should people be operated because of it? We doubt it. It seems remarkable that the epoch making paper of Eliott should have been overlooked, for so far as we can see no mention is made of it in any of the papers bearing on the subject which we have read. Relying upon the old anatomical viewpoint; forgetful of the nervous mechanism and its relationship to the internal secretions and encouraged by the radiographs and the apparent cure of numerous patients operated upon for recreation of the valve there arose a school of artificers who forgot or at least failed to weigh the great truths advanced by Eliott. That these have been supported by Starling, Bayliss, Gaskell and others is proof of their value.

Eliott showed that there is a close relationship between one of the internal secretions, namely, adrenalin and the sympathetic. It is an axiom in physiology that if certain nerves are inhibitory in their action adrenalin increases this inhibition and that if contractor, adrenalin will cause contraction. This internal secretion has therefore, been used very extensively in physiology for the purpose of determining many moot points relating to the three great sphincters of the alimentary canal. By a specially constructed apparatus which registered the contraction and by eliminating all other nerve supply Eliott was able to demonstrate after the injection of adrenalin a very marked contraction of the ileocecal sphincter. He showed conclusively that this contraction was confined to a very limited area beyond which the contraction ceased. What is the clinical significance of this experiment of Eliott's? It would seem to us undoubtedly this: That the flow of chyme from the ileum to the cecum is under the control of a muscle and not of a "valve." Barber and Draper and Braash have shown how extremely limited is the value of the uretero-vesical "valve." It is the same in the gut. But there is a far deeper significance attached to this experiment than would appear from this interpretation alone. May it not be possible that a deficiency of adrenalin is really at the bottom of ileocecal "valvular" insufficiency which itself seems to us a symptom rather than a cause. Whether this internal secretion is inhibited by toxemia or the toxemia results from an inhibition we are not at present prepared to argue. It will remain for future laboratory experiment to elucidate this problem, but at least this gives us some clue to work upon. On the basis of what has been shown by Bayliss and Starling regarding the activation of the pancreas would not one be justified in assuming that an analogous process may take place in the region of the ileocecal sphincter, namely, that with the advent of the chyme a prosecretion is formed which activates the adrenal and that some deficiency in this process may cause at least a part of the symptoms of toxemia. In any event the train of thought based upon the accepted hypothesis that the hormone bodies preceded the development of the nervous system in the process of evolution and that the vertebrates still retain both systems leads to this conclusion. They are more or less complementary to each other.

It is evidently for future investigation to decide in given individuals whether one or both systems are at fault in ileocecal insufficiency. Closely correlated with this is the well-known clinical fact that spasticity of the internal sphincter muscle results in constipation, and that clinically the correction of a lesion at the anus immediately restores the normal function of the bowel. This is part of the sphincteric system of the alimentary canal and has a control similar to that of the ileocecal sphincter and pylorus, only more complex and difficult to understand. From the observations of Dale and others it would appear that the internal sphincter is composed of two parts, the one is supplied by motor and inhibitory neurons which have travelled out together in the thoracic lumbar outflow and are situated near the muscle; the other, by motor neurons belonging to the thoraco-lumbar outflow and situated in the inferior mesenteric ganglion and by inhibitory neurons belonging to the sacral outflow. It is probable that the internal sphincter is partly volentary and partly involentary, the volentary fibers bring those derived from the levator ani and supplied by the inferior pudendal.

For this reason we wish to emphasize that in our experience and undoubtedly for the same reasons cited, constipation, which is well-known to result from minor lesions of the rectum, such as fissures, etc., is not the mechanical process which we recently considered it,—resident chiefly in the rectum, the direct result of a tight sphincter—but is due to functional disturbances of all the sphincters and can therefore by x-ray, often be located in the cecum or oral portion of the colon or in the stomach itself. It is thus not the simple problem as we have been taught to look upon it, but a very complex one, far removed from mere mechanics. It can be worked out clinically in the light of modern physiological facts and with the help of the x-ray. We have only cited this to illustrate once more the many sidedness of intestinal toxemia. So much for the neuromuscular viewpoint.

From the bio-chemical viewpoint: To the French scholar and pathologist Roger, professor and director of the laboratories at the University of Paris we owe much to our knowledge regarding the true autointoxications. Roger conforming to the ideal type described by the Earl of Mar, possessing nimbleness of mind and other salient characteristics; presented chemical proof of the poisonous character of the secretions of the epithelium of the duodenum itself many years ago. This proof simultaneously worked out by the authors has recently been corroborated and elaborated upon by Whipple and others who agree with Roger that certain of the poison causing intestinal toxemia belong to the proteose group. This view has long been held by the writers who have themselves contended that the toxemia of partial or complete intestinal obstructions, particularly of those situated in the oral portion of the tract were much more bio-chemical than bacterial in origin. The only microscopic tissue change after death from this toxemia of epithelial origin is an intense congestion of the capillaries noted chiefly in the terminal colon. We believe this to be frequently the starting point of colonic infections which until now have been studied entirely from a narrow bacteriological viewpoint. May not this injury by the toxins be accountable for the subsequent bacteriological invasion which results in the purulent infection of the colon which in common with others we have described in previous papers.

Roger showed in '08 that the toxicity of the secretions of the stomach was very low, but was increased more than fourfold after acting upon meat. He also showed that the duodenal secretion was infinitely more toxic than that of any other part of the canal. Thus the *toxicity is universally proportionate to the digestive activity of the gut.* The writers have shown by repeated experiment that the duodenum is virtually free from all pathogenic bacterial forms. The organism cannot well exist without the duodenum. The terminal ileum, ceco colon and often the stomach are filled with every conceivable sort of bacterial life. *No digestive process worth naming takes place in these organs.* The organism can well exist without them. These facts are interesting, instructive and convincing.

What has the bacterial viewpoint of intestinal toxemia to offer? Perhaps the most recent hypothesis is that presented by Underhill who arguing that it is unnecessary to presuppose bacterial activity upon the percursors of the amino acids, presents the view that a further splitting of the amino acids produces the poisons which cause the familiar symptoms. He holds that it is much easier from a clinical standpoint to explain the action of the bacteria upon the simpler end products of the proteins than upon their complicated intermediary products of hydrolysis. There is no doubt in our mind that this suggestion from so eminent an author shall serve to throw valuable light upon this important phase of the subject.

What has the mechanical viewpoint to offer? In a limited percentage of cases the mechanical factor is all-important. We have spoken of the hypothesis regarding the nature of the toxins; chemical, bacterial, etc. The mechanical obstructions when present play an important part in facilitating the entrance of these toxins into the body. That a certain delay of the stream is present in most cases is probably true. That this delay may be caused by physiological disturbances such as those already referred to is also true.

Our experience with the mechanical conditions is as follows: Most of the obstructions of the terminal ileum have been spasmodic—a few have been due to bands,—the only true mechanical obstructions outside of sporadic cases have been those due to "elbow deformity" of the ascending colon. The frequency with which this occurs; its constancy of position and the persistent tendency to reformation leads us to ascribe to it an embryological origin already discussed by us in a previous paper. The deformity is of course due to the well-known "veil." Other bands of adhesions occur at various levels and are familiar to all. These are evidently the result of local inflammation.

What has applied surgery to offer and what are the procedures that have been in general use?

1. Ileo-sigmoidostomy.
2. Ceco-sigmoidostomy.
3. Repair of "valve."
4. Cecostomy.
5. Plication.
6. Appendicostomy.
7. Total colonic exclusion.
8. Colectomy.
9. Ilesostomy.
10. Developmental reconstruction.

The first three have failed because they are unphysiological. The fourth is unnecessary if the appendix is present. The others have as yet a place in surgery. We are tabulating the results in twenty-eight cases of developmental reconstruction of the colon with results that to date are encouraging.

SUMMARY.

Our experience with these operations is as follows:

Ceco-sigmoidostomy, five cases—a faulty operation.

Appendicostomy, 100 cases. Satisfactory when indicated.

Ileo-sigmoidostomy, five cases. Results unsatisfactory, due to packing of the partially excluded colon.

Colo-sigmoidostomy—very satisfactory.

Ileostomy, twelve cases—very satisfactory in all.

Plication, eight cases—temporarily satisfactory.

Developmental reconstruction, twenty-eight cases—most satisfactory of all when indicated.

Discussion.

DR. SAMUEL LLOYD, New York City: The question of intestinal obstruction, of course, is one that we are all interested in. The question that I was particularly to discuss today was Dr. Peterson's paper. I regret that he did not, in writing his paper, take the whole statistics of the service rather than simply those that he had operated on himself, because I think it is better, where we are working together in that way constantly and continuously to use all the statistics of the service, rather than to use simply one man's work. It gives a larger number of cases, and it also gives the collation of the work done by more than one individual, which is rather an advantage statistically. That is the only criticism I have of his paper.

It is a perfectly sane, rational, straightforward record of the conditions that are met with and of the methods of meeting them. There are one or two points that should be made. For instance, I remember in his speaking of the congenital defects that he omitted a case of complete absence of the colon that we had in the service a year or two ago.

Now, taking up the question of hydrostatic pressure, I very seldom hear of it any more, and I am thankful that that is so, because during the days of hydrostatic reduction of intussusception, we had a much larger mortality than now. Those cases were played with so long by the pressure of the water, and the pressure sometimes increased to such a degree, that when the patient came to us, he was beyond the possibility of recovery.

As Dr. Peterson said, these cases must be taken early, and there is no excuse—Murphy has expressed it in his usual epigrammatic way—for not making a diagnosis in these children. The condition is clean-cut, and just as soon as that diagnosis can be made, the surgeon should get to work.

The reduction of the intussusception requires a great deal of care and a great deal of judgment, too, as to whether we should simply reduce or whether we should resect, and there we have to depend upon personal experience. Many cases that look almost hopeless when we first reduce them, recover without resection. I think, too, that in all of these conditions we should look out for possible rupture of the bowel before the operation. I have seen several of these cases before the reduction, where there was a slit in the bowel when it was reduced which evidently occurred just before the operation was done. It is exactly like a perforation and would have been overlooked if one had not looked for it carefully.

Dr. Charles G. Kerley, New York City: One might question the statement that the differential diagnosis of intussusception is always readily made. Not all cases present the clear-cut symptoms of the text-book. Impaction of feces may cause intestinal obstruction, closely simulating intussusception. I have had two such cases. I reported a case some time ago in which there were diverticula located at the ileocecal valve and obstruction resulted, the occasion for which was revealed by an exploratory incision. Bands of adhesions of congenital origin have caused obstruction in two of my patients, the symptoms appearing shortly after birth, and both, upon operation, showed adhesive bands surrounding the colon making sufficient constriction to produce an obstruction. Tubercular exudate forming adhesions and constricting bands is not an infrequent cause of stoppage of the bowels and this may be one of the early manifestations of a tubercular process. Acute pneumococcus peritonitis has caused complete obstruction under my observation. In intestinal obstruction in an infant, intussusception is usually the first thing thought of and exploratory incision should be made in all cases in which there is an obstruction which is not promptly relieved by non-operative measures.

Dr. Fenton Benedict Turck, New York City: In the splendid presentation of the clinical aspects of intussusception, obstruction due to other causes, and various interference with the propulsion of the intestinal contents, no mention was made of Senn's classical experiments on intestinal obstruction. His work probably stands today the most comprehensive scientific research made on this subject by an American. One of the important facts he observed was that obstruction of the intestinal tract up to 75 per cent produced no symptoms whatsoever, until the circulation was hindered—that is, not until venous stasis was produced did symptoms occur. In my experiments I found that interference with the venous circulation at once increases the toxic quotient in the blood and lymph surrounding the cells. This venous stasis and resultant asphyxia interferes with the function of the cells of the mucous membrane and of the submucosa; the resulting conditions become progressively favorable for bacterial invasion, and protein intoxication.

The bacteria may be observed, under appropriate stains, to pass between the cells into the submucous tissue of the intestinal wall and there become destroyed. The protein "split products" of bacteria and other substances are set free in the submucosa and carried by the blood stream, or filtered through the tissues, producing local and general toxic effects.

Two important factors are, therefore, to be considered. One is the bacteriologic migration, and the other is the abnormal absorption of partially split protein due to the patholic changes of the asphyxiated mucosa. This passage of bacteria or protein substance does not occur until the venous circulation is disturbed.

This is so highly important to appreciate that I cannot emphasize it too much. This explains also why it is that obstruction in the intestinal upper tract is more toxic than below, not because of virulence of the bacteria, but because of the degree of the antibodies formed in the wall and the ferments, and the antibodies are richer higher up.

Suppose we tie off the intestinal tract and imprison it in a loop. The bacteria themselves become so tolerant to the secretions that they can grow and not become destroyed. At the same time, when we open up the obstruction, after, say forty-eight hours, and allow the pent up material to run down the intestinal tract then bacterial invasion occurs along the entire tube. That is why although an animal is perfectly well with an intestinal loop tied for, say, forty-eight hours when we loosen that loop and let the material down, the animal dies in six or eight hours. Such an experiment makes clear to many surgeons why it is that when they release the obstruction, their patients flare up in a few hours to a temperature of 106 and sink rapidly into death. To prevent the pent up material above the obstruction from infection and invading the entire intestinal tube and wall, drainage has been attempted by a fistulous opening above the obstruction with preliminary drainage, but this usually results in death from cause mentioned above.

In surgical procedures the proper method of drainage is to carry a drainage tube through the entire alimentary tract. A rubber tube with lateral perforation at and above the point of obstruction is introduced by way of the mouth and carried through the anus. The length of this tube need not exceed 75 cm. This is left in situ for continuous drainage and irrigation until the danger of bacterial invasion is over, then removed.

In my experiments, I fed animals with cultures of the intestinal bacteria and produced peptic ulcers of the stomach and duodenum. The nature of this bacterial invasion was not inflammation (that is, invasion and multiplication of bacteria in the tissues) but, prompt disintegration of bacteria which resulted in reduction of antiferments and antibodies in the lymph and serum, and thus autolysis or self-digestion of the tissue cells of the intestinal wall. Not only local effects were observed, but the entire splanchnic area was involved with degenerative changes in the muscle cells of the intestine with chronic venous congestion. Stasis of the intestinal contents was the rule with insiduous, though constant general symptoms of so-called intestinal auto-intoxication.

One further point I wish to bring forward as especially significant. In my experiments on animals proving the permeation of intestinal bacteria, biochemical determinations were done to measure the specific bacteriolytic effect of the submucosa, of the ileum and jejunum. An extract was made of the tissue lying between the mucosa and the muscularis; various dilutions of this were incubated 30 minutes with autogenous cultures of B. Coli and injected into the veins of young rabbits. Anaphylaxis and death occurred within 3 minutes in dilutions as high as 1 to 200, while control animals showed no anaphylaxis. This was a very dramatic demonstration of the inter relation of the antibodies in the wall of the intestine with the flora multiplying in the lumen of the alimentary tract.

Dr. DeWitt H. Sherman, Buffalo: I don't know that I have anything to say in closing Dr. Snow's paper, but I did want to speak of one or two things. Dr. Lloyd spoke of the fact that the diagnosis in these intestinal obstructions was clean-cut. Dr. Kerley objected to that, and if you noticed, when Dr. Kerley objected there was considerable applause, and as I looked around among those faces, they were all medical men.

Now, we are the ones who run across this thing early, or run across it later, and we are the ones who have had many anxious hours as to whether this is an obstruction or is not an obstruction. We are the ones who run across these persistent vomitings that are in the line of cyclic vomitings, and it is a man made of metal who isn't going to worry as to what should be done or what is the best thing to do. The surgeons tell us, "Bring us your case early and we will save it."

Now, my experience hasn't been great. I don't suppose I have had more than twenty cases of these intestinal obstructions—that is, intussusception or volvulus. I went along for about eleven or twelve of those, all consultation cases, and every one of them died. To one of my surgeons, a man in whom I had the greatest confidence, and with whom I was very friendly, I said, "Some day I will bring you one of these cases and it will live, but it has got to be in one of my own professional children." I did bring him one and it did live —no special glory to me, but as a pediatrician I was endeavoring to get in on the ground floor on intestinal obstructions, trying to see results, if it is possible.

Now, this is the stand the surgeons have always taken. "Get the case to us early." We can get them early sometimes, and they produce good results, but from what has been said this morning, and especially, it seems to me, by Dr. Turck, it is up to the surgeons now to do something more. I have often wondered why, when I would take one of these cases to a surgeon, the child apparently in good shape, make the diagnosis, have it corroborated by the surgeon, and then six hours after operation the child would die. What is the use of taking it to him—it would live longer the other way. What killed that child? Was it the shock? Was it what Dr. Turck has so clearly explained this morning? His solution of it seems to me to be the solution. What have the surgeons done to overcome that and help us out; what have they? I want to save these children's lives, and I don't see the progress the surgeons have made in saving the lives of the late cases.

There is another point that I wanted to bring up. If they are performing this operation, why don't they make an artificial anus? That is what I have been trying to get some of the men to do, if it does any good. Wash out that part of the bowels above the constriction and prevent all that material going down. They will tell us, "Yes, you open up the obstruction and all that material goes down. It is absorbed and picked up by the bowels. It gets into the system and the child dies."

If that is what occurs, why don't they do something? That is what I am after. In the first place, to take some of these cases of cyclic vomiting on the first attack or two, and to say that it isn't an obstruction, or it is an obstruction, is not an easy game to play; it is a hard one. In the second place, here are the surgeons. We can bring something to them and get it to them early, and they will do something, but if a little late, they don't do anything except operate, and what is the use of that.

I don't mean to complain about the surgeons, but I want to see the results, and I would like to see the results that can be produced if they will go a step further than operate in the delayed cases, and let us keep our children.

Dr. Edward W. Peterson, New York City: Just a word in closing Dr. Lloyd has expressed his disappointment that all of the cases of intussusception admitted to the Babies' Wards of the Post Graduate Hospital were not included in my paper. During the period covered in this report we have had forty cases of intussusception admitted to the service, and, of this number I have personally treated twenty-five. In these forty cases, if we exclude the case that died just after admission, and the one that died just as the operation was started, we have had twenty recoveries and eighteen deaths, which is a fair percentage of recoveries, when it is taken into consideration that the majority of the cases were seen after forty-eight hours.

In answering Dr. Kerley's criticism. I fear that he has misunderstood the point I wished to emphasize. I did not say that abdominal diagnosis is easy in infants and children, but I do claim that intussusception in early life, presents such a uniform and characteristic clinical picture, that the diagnosis should be made without difficulty. In the other types of intestinal obstruction it isn't necessary to make a differential diagnosis. The very fact that obstruction exists calls for surgical treatment and the differentiation can be made at the time of operation.

Dr. Kerley has reported four cases for diagnosis. In the first three there were symptoms of intestinal obstruction, but nothing to suggest invagination. Muco-hemorrhagic stools did not occur and no abdominal tumor could be felt. In the fourth case, in addition to pain, vomiting, constipation, etc., there were blood and mucus in the stools, and this group of symptoms should have suggested intussusception, which was the condition found at operation.

Now I don't think that Dr. Sherman's criticism is at all fair. Dr. Snow, Dr. Draper, in fact, all investigators have shown that in intestinal obstruction there develops rapidly a profound toxemia. The more the mucosa of the bowel is damaged the more quickly does this bio-chemical toxine develop. This toxine acts principally on the liver and the kidneys and their functions are inhibited to such a degree that death results. These cases of obstruction die then, not as a result of surgical treatment, but as a result of an overwhelming toxemia. In answer to Dr. Sherman's last remark, I wish to state that we expect to save by surgical treatment practically all early cases. In my series there were but four early cases and all recovered. In the late cases there were eight recoveries, which unquestionably would have died if they had been left to any other method of treatment. The first four cases we expected to save. Those eight late cases we congratulate ourselves on saving.

Dr. Godfrey R. Pisek, New York City: I think Dr. Peterson's paper was a very valuable one. I would like to see a paper on intussusception in every annual gathering of a pediatric body, particularly of medical men. The diagnosis, as has been stated, is simple when one's attention is called to it, but it is apparently not made as frequently as it should be. The difficulty is that the internist is apt to have his attention distracted when the case is before him. An infant on the breast is the type of child that suddenly becomes ill, and unless the physician has the surgical possibilities of that abdomen in mind, he is apt to give a dose of castor oil and wait. Then he is told that the stools contain some mucus and blood, and probably he is not personally acquainted with the fact that there is no fecal matter in the stools. Thus the hours go on and the days go on. Then, if his attention *is* directed toward an intussusception, possibly the mechanical treatment is instituted first.

I should at this point say most emphatically that I should like to see mechanical treatment of intussusception abandoned. If we did that, we would bring intussusception closer within the forty-eight hour limit of surgical safety, for beyond that point the chances are meager.

Now, a surgeon approaching a baby of that sort thinks of surgical possibilities. He doesn't think of gastritis or ileocolitis, but he thinks of appendicitis or intussusception, and therefore is more apt to make the diagnosis.

Again, the medical man may see the child in a period of calm when it has lost the appearance of shock and is quite content, the suspicion he may have had of intestinal intussusception is abandoned, and he is again lulled into his period of security while the forty-eight hour period draws nearer. It is *that* I particularly emphasize, the need of prompt diagnosis, and if it is coupled with prompt surgical intervention, this high mortality will be reduced.

Dr. J. W. Draper, New York City, in closing said: Intestinal toxemia is a many sided problem; the tendency in the past has been to consider each of the factors constituting it as entities rather than as fused in a composite picture. Thus the attitude of the profession toward it should be one of open-mindedness. Many theories have been advanced all of which have certain merit; the bacterial, the bio-chemical, the neuromuscular, the mechanical. No branch of progressive medicine illustrates more concisely than this the immeasurable value of animal experimentation and the truth of the statement that abstract findings along experimental lines are always of value even though their application may not be made directly to human beings for a number of years after. Thus the experiments made by the speaker under the direction of Dr. Robert Weir in 1901 which led us to the conclusion that duodenally obstructed animals died from absorption of toxines which were of truly autogenous origin due to perverted activity of the duodenal epithelium itself was for years rightly regarded as having merely an academic interest. Now after fifteen years the applicability of these results toward solving the problem of intestinal toxemia in man is only just beginning to be realized. This proof of the dependence of progress of applied surgery upon vertebrate experimental study was one of the most important points in Dr. Snow's paper. The French pathologist, Roger, in 1907, showed that the toxic material was undoubtedly a proteose. His work has been recently corroborated and added to by Whipple. No one has given greater stimulus to students of the problem than Hartwell of New York whose work on the bacterial and water privation relationship to the lethal outcome was valuable. In the speaker's experience the water losses had not been so great after duodenal obstruction ending in death as had occurred after thorough dosing with pylocarpin but not to the point of interfering with the animal's health. The essayist has spoken of the microscopic condition of the organs after death. That is probably not a reliable index because the function probably can be greatly impaired in these acute processes without showing much microscopic change, to wit: glycuronic camphor pairing power of the liver has been shown to be reduced from twenty-five to thirty-five per cent. as a result of intestinal obstruction. The microscope showed no change. Our latest studies show the non-coagulable nitrogen blood content to rise fully fifty per cent. in acute duodenal obstruction. Underhill's recent studies have shown that the action of the bacteria upon the final products of protein hydrolysis rather than upon the primary products may stand in important causative relation to the symptoms of partial or complete intestinal obstruction. It is very significant that if the epithelium is destroyed in a duodenal loop which drains to the outside the animal will live, whereas if such a loop is created the animal will die if the epithelium is left intact.

The problem of ileocecal insufficiency is not by any means as simple as has been supposed. One must consider it from embryological, anatomical, neuromuscular and bio-chemical standpoints. We are dealing with a sphincter, not a valve, a physiological rather than a mechanical mechanism. A differential diagnosis between mechanical and physiological defects at the terminal ileum can therefore probably be made by the injection of adrenalin. The toxicity of the epithelial secretions is directly proportionate to the digestive activity of the gut, the stomach and ceco-colon having no digestive power are correspondingly lacking in toxicity. Physiological surgery is a corrective measure in selected cases. Of all the operations ileostomy and developmental reconstruction have given the best results for the relief of intestinal toxemia.

A SELF-SUPPORTING HOSPITAL.

An economic step to bring what is best of present-day medical and surgical skill within the means of the many, as well as meet the present urgent need created by the Workmen's Compensation Law.

By J. BAYARD CLARK, M.D.,
NEW YORK CITY.

It was not so very long ago that the idea of a hospital planned to support itself in exchange for the services it rendered would have been "laughed out of court" as absurd. By the average mind the practice of medicine was looked upon as something altogether too mysterious to be reduced to any rational medium of exchange. Hospitals were built, but they were for the poor—a sheltering roof for those whose destitution and disease demanded both pity and attention.

To the old school family doctor any plan for such a thing as a self-supporting hospital would have had very little purpose and no appeal. At that time, even in the larger communities, a hospital was no better than the home, nor for that matter as good, for the ability and devotion of the women of a household in those days was a real factor, and the care and conscientious attention of the physician reached to the highest degree of faithfulness and honor. Is it any wonder we have been loath to see both home and family doctor in times of sickness and distress replaced by other, even if newer, institutions?

Yet up from the ashes of an old art there has arisen a new science of medicine, and to the achievements of its development is linked a new world progress. The hospital has been the cradle of that development, and its achievements have altered a world's map; for through the conquest of pestilent disease whole countries have been made habitable places, through the detection of their subtle sources epidemics of cholera, yellow fever and other rapidly depopulating diseases have been stamped out and held in check; through the means of modern quarantine, the commerce of nations has been extended. Through the scientific examination of water and milk supplies entire cities are safeguarded. In the field of surgery another group of bodily foes has been overcome, and in the laboratory precise information as to the causes and nature of disease has made prompt and efficient treatment possible. Just as the hospital has come to represent the vehicle of advance in the evolution of medicine, so it is that in this growth of knowledge and means, a division of the doctor's labor has been inevitable, and where yesterday we had the family doctor, whose knowledge and skill represented practically the sum of medical attainment, today we have a number of doctors—specialists if you please—to represent the different segments of what has really become a vast department of learning.

New York City serves well to exemplify the modern hospital system which may be divided into two classes, those run by the city and those maintained by private charity, and to a certain extent, assisted by municipal funds. No account need be given of the number of small private hospitals and sanatoria which exist and which are conducted by individuals or groups, for the care of patients who are able to pay a sufficient amount to maintain this class of hospital, as they have at present no important place in the general hospital scheme providing for any very large class of the community.

First, then, that class of hospital generally known as city hospitals will be defined: These are institutions run at the expense of the taxpayer for the benefit of the poor and paupers of the city, who are treated free of all charge after the fact has been established that they are unable to secure for themselves private medical aid. The physicians and surgeons of these institutions are recompensed for their services by the experience gained through their work in connection with the hospital.

Second come the charitable institutions maintained and run by individuals or societies generally representing a religion or race; these obtain the necessary funds for building and running expenses, aside from the city allowance, through endowments or bequests or by soliciting money in the name of charity. Many of this class have added pay pavilions for private patients in order to increase their incomes. These hospitals, like the city-sustained institutions, are established for the poor people who are forced to seek the aid of charity. The physicians and surgeons are recompensed by their experience gained, plus what the provisions made for their private patients add to their income.

From this short description the aim of these institutions can be readily enough seen, that is, that their purpose is to provide for those whose poverty in times of sickness makes them dependent on outside aid. It is a fact, though it may not invite congratulation, that every large city has varying numbers who are thus deplorably situated. It is not the object of this paper to dwell further on this subject of the dependent poor and the provision which is made for them. The situation has been cited simply to show the existing hospital system and the provision it makes on the one hand for those in the bonds of poverty, and on the other hand, through its private patient departments, for those who are well enough off to stand the expense it is found necessary to impose.

Whether we like it or not, this inevitable thing has happened, and for safety in serious sickness we must leave the home for the adequately equipped hospital, and the old time family doctor for the trained mind and hand of the special worker. The net result of this has been the present hospital system in all large cities; and it is these hospitals, and the physicians and surgeons connected with them which have all that is best in medical and surgical skill to offer—but as it has been shown, only to those whose poverty has reduced them to the acceptance of alms, or at the other extreme, only to those who can afford the costly accommodations provided by private rooms and private fees. For people of moderate means and self-respect when sick or injured, there is something much different in store—for they must, if in search of the best care, either become at once participants of charity, or as the case so frequently is, spend their last dollar avoiding the disgrace of accepting it. It is to meet this problem which those of moderate means must face, that this new form of hospital is proposed.

What medical and surgical skill has to offer to people living in large cities today is as well standardized, and as capable of fair valuation as the clothes they wear or the food they eat; but that medical care of the first quality should be made as available to the public at large as the other common necessities of life is the purpose of this hospital.

In the Sunday issue of *The New York Times,* December 6, 1914, the practical feature of this plan for a self-supporting hospital were first described along with the figures demonstrating its feasibility. The foundation principle upon which this form of hospital rests is so entirely different from our present system that it should be very clearly understood, and that principle is that it must support itself by a fair exchange for the services it renders. It must be established by an investment of money and not by gifts of money. It must assume a responsibility such as any incorporated body assumes to those who have invested interests at stake. It must stand or fall in accordance with the value of its own production.

The figures upon which this plan has been constructed show that such a hospital can not only provide medical and surgical attention of the first quality at a cost which will come within the means of the self-supporting public, but that it will pay suitable salaries to its doctors and nurses and all other workers, and show a fair rate of interest on the investment as well.

The waste in our present system of applying medical and surgical knowledge and skill is enormous, and an important feature of this plan is simply providing a way through up-to-date business ability and economy by which that waste can be eliminated. It is possible here only to give a very brief sketch of the architectural arrangements. It is planned that the two lower floors will be arranged in suites of doctors' offices with accompanying rooms for examination and treatment; and equipped with all that is most modern in medical and surgical apparatus. Above, the building is provided with wards and single rooms and all other facilities of a perfectly equipped hospital. The maintenance of the institution will come largely from the office patients. The fee for the ordinary visit has been set at one dollar. For the first visit and for such special and laboratory examinations as are necessary an extra charge will be made.

For patients occupying ward beds there will be a charge of one to two dollars a day—for single rooms two to three dollars a day. There will be a charge of one dollar for each visit of the attending physician in the case of medical patients. Surgical patients will pay a reasonable operation charge which will include their after care, except where unforeseen complications arise.

It will be seen that patients will be able to figure beforehand pretty nearly what their weekly expenses will be, which is a very important thing for those living on the close margin which life in large cities often entails. That these fees will come within the easy reach of the vast majority is not difficult to see.

This form of hospital when realized will advantage all classes—the poor in the charity hospitals will have attention which is not divided between them and those who are not entitled to charity. The advantage to those who are well off is two-fold; for when their physicians are provided with some assured income from their work in self-supporting hospitals they will not need to charge such large fees in their private practice, and doctors who gain their daily experience in institutions which must survive on account of the quality of their own production, will be better trained than those without this responsibility. The advantage to physicians will be very great, as no doctor in such an institution will be required to take care of more patients than he can give adequate attention to. Working in co-operation they will have at hand the advantage of all necessary consultation. The records which can be kept in this system will be accurate and of real value to science. Being recompensed for their services will leave their minds free for the interest of their profession, which means in reality the interest of the patient.

Since this hospital was planned a new feature of interest has appeared to give it immediate usefulness. The Workmen's Compensation Law in the State of New York, which became a law March 16, 1914, created a demand for some sane and systematic form of medical and surgical pay service, which as yet has not been met.

It would seem as though the requirements of both employer and employee had found their exact solution in this plan of a self-maintaining hospital. At the present moment plans of adjustment are being considered by many charity hospitals of this city in order to determine if it will not be possible for them lawfully and ethically to provide medical and surgical service to injured workmen at the expense, as the law provides, of the employer. This is a difficult and awkward task to expect of institutions whose legal incorporation, freedom from taxation, and fundamental principle is based on an ideal of charity and mercy which seeks only to care for the sick and injured who are destitute of means with which to pay their way to medical attention. With characteristic devotion, however, to the cause of the injured and ill, these hospitals are doing their best to meet the situation and functionate in a sphere quite foreign to that for which they were put into existence. Hospitals of the self-supporting type would be able to save this necessity of digression, and at the same time give to the corporations an institution which they can meet on a business basis. Already some of the larger corporations which employ large numbers have considered the plan of building hospitals for their own workmen. The form of hospital here depicted would make this entirely unnecessary.

The time indeed seems ripe for some proper organization of our medical assets, in order to put them within the purchasing power of the public. The logical next step for medical science as it is today is the "medical group" facilitated by a properly equipped and managed institution. If this idea falls upon fertile soil, it need be no surprise to see, within the next few years, like institutions in all the larger cities —a menace to shiftless doctoring and dosing, and a boon to communal morals and health.

ADDRESS ON MEDICAL LEGISLATION.*

By **WILLIAM J. CRUIKSHANK, M.D.,**

BROOKLYN, N. Y.

I RISE for the purpose of presenting for consideration the views, on medical legislation, of the Medical Society of the County of Kings.

It is the duty of the medical profession to safeguard the public health. In the absence of legislative enactment no faithful discharge of that obligation is possible. It is, therefore, our business to bring about proper medical legislation. That work should not be left to the spasmodic effort of the unorganized few. It should be the first duty of the State Medical Society. Our present method of dealing with legislative matters is disgracefully inadequate. Disgracefully, because this inadequacy lies in an almost complete indifference on the part of the individual physician to legislative questions; questions of vital importance to the sick and to the community at large. This indifference has naturally extended to our local societies with the result that they stand palsied before legislative attempts so pernicious as to strike at the very foundation of educational standards. Nor are these local societies organized or equipped to propose, frame, or carry into effect, good legislation. The methods usually employed by them are haphazard, puerile and slovenly. This deplorable condition should be remedied without more delay. If the profession of our state earnestly desires to maintain and further develop its present high standard, and if it seriously intends to protect the community against charlatanism and quackery, it should cease its amateurish, almost pusillanimous attempts and for the future have recourse to concerted and sincere endeavor; endeavor worthy a great cause and a learned profession.

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* Delivered at the Meeting of the House of Delegates of the Medical Society of the State of New York, at Saratoga Springs, May 15, 1916.

Nobody can truthfully deny the vital importance of this question. With due reverence for all scientific endeavor and achievement, I say without hesitation, that this question of medical legislation has assumed such proportions that it might well, at this time, take precedence over any and all other questions which may be presented for our discussion. If by devoting the whole of this session of our Society to the inauguration of a movement which successfully combats mischievous, and furthers beneficent legislation, it would be a creditable achievement resulting in incalculable public good, especially to the sick poor and the needy, who by reason of their helplessness through lack of knowledge of these subjects, are entitled to our protection.

For the profession of medicine, with its unparalleled history of self-abnegation and scientific achievement, to stand in the presence of retrogression, with voiceless lips; to remain silent and inactive while selfish influences are persistently at work in the interests of special legislation, legislation the enactment of which would place human life in jeopardy; would be evidence of an appalling lack of appreciation of duty to the community, an inertia almost inconceivable. There could be offered no reasonable excuse for such a lack of action. The leaders in our profession can no longer plead in extenuation, ignorance of the existence of these pernicious legislative attempts, nor can the rank and file further shirk their responsibility upon that ground, for these repeated efforts have become notorious. Indeed, it is a common scandal that one cult, while attempting to place upon our statute books laws authorizing its members to care professionally for the sick, actually denies the existence of disease, insisting, on the authority of its founder, that there is no such thing as pain, hemorrhage, tuberculosis, cancer, and the like, that there is no contagion and therefore no necessity for sanitation, thus, in the extremity of delusion, dragging suffering humanity back to the middle ages, back to superstitions low and debasing, when disease and cure alike were thought to be dependent upon supernatural causes. This they would do by warrant of law. When viewed in the light of modern knowledge and integrity of purpose, such legislative attempts are not only evidences of retrogression, they are monstrously insane and cunningly self-interested, and therefore they require our concerted action and restraint.

A plan to successfully combat such ignorant, deluded and vicious attempts at legislative enactment, resolves itself simply into the intelligent arrangement and use of the material already at hand. Not a single addition is needed for organized concerted operation and successful activity.

The plan which I beg permission to submit is the following:

All medical legislative matters shall be referred to the State Society. That society shall organize a state legislative committee which shall consist of the chairmen of the legislative committees of the different county societies, with a chairman selected by the house of delegates. This chairman shall, if possible, reside in Albany. The chairman of the legislative committee of each county society shall so organize his committee that it shall always consist of as many physicians as there are senatorial and assembly districts in his county, a physician being appointed from each district. Each member of the local committee will naturally be in constant touch with his chairman who, by reason of his office, becomes a member of the state legislative committee and therefore in touch with other members of the state committee, and also with the state chairman at Albany. In this way may be brought almost immediately into existence and concerted operation a strong organization of selected physicians especially and actively interested in legislative questions, which will ramify through and through every nook and corner of the state.

During the last session of the state legislature but one, namely, in the year 1915, I had the honor to act as chairman of the legislative committee of my county society. In that year about 150 measures amending the Health Laws were introduced. Not one of these measures, in so far as our committee could see, originated in a desire to serve the community nor was in any way calculated to do so. On the contrary the final enactment of many of them, by licensing ignorant, deluded or dishonest persons to professionally care for the sick, would have reduced to the lowest level the standard of medical education, menaced the public health, and jeopardized human life.

I believe that the mere knowledge of the permanent existence within our borders of such an organization as I have suggested, would have prevented these attempts. If this is too sanguine a view; if, in spite of this knowledge, these attempts had been made, it cannot be questioned that one or two vigorous campaigns waged by such an organization, would have destroyed them utterly and would have prevented their repetition. Medical legislation, being a state matter, it is obvious that the interests of the profession and the general public cannot be best served by a single county society, or even by the societies of all the counties if they act independently. So vital a matter should be the concern of the united medical profession of the state.

Permit me to repeat, therefore, that the legislative committee of the state society should consist of the chairmen of the legislative committees of all the county societies with a head, residing in Albany. This committee might be a committee of correspondence or it could hold regular or special meetings. It should be provided with funds to defray all necessary expenses, such funds to come out of the treasury of the state society. The State Medical Society consists of about 8,000 members; hence, a small annual contribution from each member, $1.00, or even 50 cents, would provide a sum far in excess of the amount actually required.

It would, of course, be the duty of the members of this state committee, since they are chairmen of the legislative committees of their own county societies, to keep themselves informed regarding all proposed state medical legislation. Their special duty as members of the state committee would be to communicate with each other and with the state chairman to effect proper cooperation. In Kings county, we believe that with such a committee in operation, we might reasonably hope to see the attitude of the profession of our state toward questions involving medical legislation, change from its present one of indifference and apathy, to one of healthy activity and vigor. We cannot resist the conviction that it is largely owing to the indifference referred to that it is usually left to the few to combat even the most vicious attempts at reducing our standards of medical education. For the fact should everywhere be recognized that to lower this standard is the object of the persistent assault, made year after year, on the Practice of Medicine Act as it now appears upon the books of this state.

Notes from the State Department of Health

Dr. John Cowell MacEvitt,
Editor, New York State Journal of Medicine.

I enclose herewith an item of news which I think of sufficient importance to make public.

The Public Health Council of the State Department of Health at its meeting on April 4th passed the following resolution:

"It is the judgment of the Council that laboratory facilities in the state, both within and without the Department, being now adequate to make diagnostic examinations in diphtheria, typhoid fever and tuberculosis, it is feasible and desirable for the Department to enforce the sections of the Sanitary Code relating to prompt and uniform notification in these diseases by such means as will compel physicians at once to seek laboratory assistance in diagnosis in all doubtful cases."

Very truly yours,
M. Nicoll, Jr., *Director.*

Correspondence

State of New York
CONSERVATION COMMISSION
Saratoga Springs, N. Y.,
July 7, 1916.

Dr. John Cowell MacEvitt,
Editor, New York State Journal of Medicine.

My Dear Sir:

I have read with some little interest and some surprise the article in the June number of The New York State Journal of Medicine, entitled "The Nauheim Method," by Dr. Simon Baruch.

As a chemist and an "inexperienced therapeutist," to quote Dr. Baruch's own words, I cannot even venture to pass judgment upon the scientific value of his article from the medical standpoint, but from the chemical standpoint I believe I am in a position to offer criticism especially when I have been misquoted.

Through the courtesy of the State Medical Society, I was granted permission to make a few remarks on Dr. Baruch's paper as read at the meeting of your society at Saratoga Springs. I endeavored at that time to make clear that Dr. Baruch was using certain results obtained with artificial bath salts to prove certain contentions with regard to natural mineral baths. This indeed is incorrect and unscientific.

It is true that the solution of large quantities of calcium chloride and sodium chloride in the water to be used for an artificial bath, CO^2 bath, retards the escape of gas and improves the quality of the bath, but with our Saratoga waters the addition of such salts are entirely unnecessary for producing gas efficiency. As I explained at the meeting the supersaturation of gas and the fine association of the gas with the water is accomplished in a vastly different manner in pressure tanks of special design.

CO^2 gas is far less soluable in strong brines than it is in the weak ones and therefore nothing is gained in the quantity of gas dissolved in the water by increasing the brine. The retention of gas in the artificial baths by means of brine is simply mechanical and not due to solution of the gas. And in order to get this retension of gas the salts must be dissolved first and the gas liberated last.

The addition of brines to our Saratoga waters as they are drawn in the tub for the bath disturbs the equilibrium of the gas in solution and the efficiency is greatly reduced. I maintain as I always have maintained that the addition of salts to our Saratoga waters is not in any way necessary to gain supersaturation of anywhere from 33 per cent to 55 per cent as we do at Saratoga without their use.

Yours very truly,
George D. Pratt, *Commissioner.*
By Herbert Ant, *Chemist.*

Medical Society of the State of New York

MEETING OF THE COUNCIL.

A meeting of the Council of the Medical Society of the State of New York was held at Saratoga Springs on Thursday, May 18, 1916, at 12 M. Dr. Martin B. Tinker, President in the Chair. Dr. Floyd M. Crandall, Secretary.

The meeting was called to order by the President and on roll call the following answered to their names: Drs. Martin B. Tinker, Henry L. Winter, Montgomery E. Leary, Floyd M. Crandall, Samuel Lloyd, Joshua M. Van Cott, James E. Sadlier, Alvah H. Traver, Julius B. Ransom, James F. McCaw, W. Mortimer Brown, and W. Stanton Gleason.

A quorum being present Dr. Tinker announced the meeting open for business.

The minutes of the last meeting were approved as printed in the New York State Journal of Medicine.*

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* See volume 16, No. 4, page 216.

Moved, seconded, and carried that a Committee on Finance to consist of three members be appointed. The President appointed Drs. Alexander Lambert, Henry Lyle Winter, and Frank Van Fleet.

Moved, seconded, and carried that the Committee on Finance authorize such expenditures as it considers advisable, and that the Officers, Chairman, and members of Committees incur no expense on behalf of the Society, except railroad fares, without the approval of the Committee.

Moved, seconded, and carried that a Committee of three to pass upon County By-laws be appointed. The President to appoint the Committee.

Moved, seconded, and carried that the contract with Mr. James Taylor Lewis as Counsel be renewed for the ensuing year.

Moved, seconded, and carried that a Committee of three be appointed by the President to consider ways and means for the safeguarding of our legal and legislative matters.

The President appointed Dr. W. Mortimer Brown, Chairman, and Dr. Henry L. Winter, the third member to be designated by the Chairman. The Chairman appointed Dr. J. B. Ransom as the third member.

Moved, seconded, and carried that Mr. A. H. Wicks be appointed auditor for the coming year at a salary of $200.

Moved, seconded, and carried that the following Committee on Publication be appointed: Drs. Alexander Lambert, John C. MacEvitt, Victor A. Robertson, S. W. S. Toms, and Alexander Lyle.

Moved, seconded, and carried that Dr. John Cowell MacEvitt be appointed Editor for the ensuing year.

Moved, seconded, and carried that in order to encourage increase in membership for the year 1916, all members who are elected between October 1, 1916, and December 31, 1916, and who shall pay during that period their state assessment, may have the same credited to 1917, provided that they request it. All whose assessments are so credited shall be entitled to malpractice defence for 1916, but shall not be entitled to receive the Directory or the Journal for 1916. State assessments so credited shall be immediately forwarded by the County Treasurer to the State Treasurer.

Moved, seconded, and carried that officers and members of committees upon presentation of vouchers may have their railroad fares paid for attending regular meetings provided the bills be presented within sixty days after they have been incurred; otherwise they will not be paid:

That Delegates to the American Medical Association may have their railroad fares paid upon presentation of proper vouchers, on condition that they attend all meetings of the House of Delegates. Bills for said expenses must be presented for payment within sixty days after they have been incurred; otherwise they will not be paid.

Moved, seconded, and carried that Dr. Abram T. Kerr be appointed a member of the Committee on Scientific Work on the recommendation of the President.

A telegram was read from Dr. Rooney, Chairman of the Committee on Legislation, nominating Dr. J. N. Vander Veer of Albany and Dr. T. H. Curtin of New York as members of his Committee.

Moved, seconded, and carried that they be approved.

Dr. Henry L. Winter in behalf of Dr. James F. Rooney, Chairman of the Committee on Legislation, reported progress in the preparation of a bill modifying the medical practice act. This bill will be published in full in the December number of the State Journal.

A telegram was read from Dr. Samuel J. Kopetzky, nominating as members of the Committee on Economics, Drs. E. D. Fisher, New York; H. E. Clarke, Glens Falls; Ralph Waldo, New York; and John A. Lee, Brooklyn.

Moved, seconded, and carried that they be approved.

Moved, seconded, and carried that the resolution on preparedness presented by Dr. Samuel Lloyd be referred to the President with power.

Moved, seconded, and carried that the Intermediary Committee, Dr. Henry L. Winter, Chairman, be directed to report at the next meeting of the Council.

Moved, seconded, and carried that a vote of thanks be extended to the Tompkins County Medical Society for its courteous invitation to the Medical Society of the State of New York to hold the annual meeting of 1917 in Ithaca.

The following letter was read from the Medical Society of the County of Oneida:

To the Medical Society of the State of New York,
Dr. Floyd M. Crandall, *Secretary*.

Gentlemen:

In the name of the members of the Medical Society of the County of Oneida present at the Saratoga meeting of the State Society, we have the honor of inviting the Medical Society of the State of New York to hold its 1917 meeting in the City of Utica.

Earl D. Fuller,
Delegate from the
Medical Society of the County of Oneida.

May 17, 1916.

Moved, seconded, and carried that the next annual meeting of the Medical Society of the State of New York be held in Utica.

Moved, seconded, and carried that Dr. Thomas H Farrell, of Utica, be appointed Chairman of the Committee on Arrangements.

Moved, seconded, and carried that the privilege be granted to the Medical Society of the County of Dutchess to amalgamate with physicians of Putnam County to form a society under the title of "Dutchess-Putnam Medical Society."

At the request of Dr. Joshua M. Van Cott, Chairman of the Committee on Public Health, the nominating of the members of that Committee was deferred to the next meeting of the Council.

In view of the fact that certain County Societies have demanded dues for the current year from members transferred from other County Societies, the Secretary is directed to call the attention of those societies to the fact that such action is illegal and in violation of Chapter X, Section 3, of the By-Laws which reads:

"Whenever a member in good standing in any county medical society removes to another county in this State. his name, upon his request, shall be transferred to the roster of the county society of the county to which he removes, *without cost to him*."

Moved, seconded, and carried that the place and date of the next meeting be left to the President. The President appointed Dec. 9, 1916.

There being no further business the meeting adjourned.

Floyd M. Crandall,
Secretary.

MINUTES OF THE SECTION ON MEDICINE.

First Session, Tuesday, May 16, 1916.

The meeting was called to order at 2:30 P. M., the Chairman, Dr. John L. Heffron, of Syracuse, presiding. The meeting was a joint meeting with the Section on Public Health and the Section on Pediatrics. Dr. Joshua M. Van Cott, of Brooklyn, Chairman of the Section on Public Health, and Dr. De Witt H. Sherman, of Buffalo, Chairman of the Section on Pediatrics, occupied the platform with Dr. Heffron.

The following guests were present: Dr. Gurney, of Rhodesia, South Africa, Dr. Wilkinson, of Michigan, and Dr. W. E. Daniels, of South Dakota, and given the privileges of the floor. The program consisted of a symposium on the medical examination of school children and was arranged by Dr. William A. Howe, Chief Medical Inspector of Schools, of Albany.

Dr. F. Park Lewis, of Buffalo, read a paper entitled, "The Vision of the School Child."

Dr. William A. Howe, of Albany, read a paper entitled, "Some Practical Experiences in Medical Inspection."

Dr. Edward B. Angell, of Rochester, read a paper entitled, "The Neuropathic Child."

Dr. Edward Durney, of Buffalo, read a paper entitled, "The Open Air School Child as a Type."

A telegram was read from Dr. Thomas D. Wood, of New York City, stating that the sudden illness of one of his colleagues prevented him from reading his paper entitled, "The Health of Rural Children."

Dr. Clinton P. McCord, of Albany, by invitation, read a paper entitled, "Scope of Practicable Examination in Routine School Medical Inspection."

Dr. Stephen Palmer, of Poughkeepsie, by invitation, read a paper entitled, "The Effect of Malformation and Infection of the Oral Cavity of the Child, Upon Its Future Health."

By unanimous consent, Mr. Benjamin C. Marsh, Executive Secretary, of the New York Congestion Committee, read a paper entitled, "Economic Foundations for Health." This paper was on the program of the Section of Public Health, Hygiene and Sanitation for Wednesday morning.

The discussion was opened by Dr. John L. Heffron, of Syracuse. Dr. Moses Keschner, of New York City, Dr. Bernard H. Whitbeck, of New York City, Dr. Frank Overton, of Patchogue, Dr. E. B. Angell, of Rochester, Dr. DeWitt H. Sherman, of Buffalo, Dr. P. H. von Zierolshofen, of Croghan, Dr. Julius Schiller, of Amsterdam, Dr. A. P. Squire, of Rotterdam Junction, Dr. William A. Howe, of Albany, and Dr. L. Duncan Bulkley, of New York City spoke.

Second Session, May 17, 1916.

The meeting was called to order at 9:50 A. M. Dr. John L. Heffron, of Syracuse, in the chair. The following guests were present: Dr. Simon Baruch, of New York City, Dr. Joseph H. Pratt, of Boston, and Dr. Morris S. Fine, of New York City, and were given the privileges of the floor.

Dr. John M. Swan, of Rochester, read a paper entitled, "The Value and Limitations of Physiological Therapeutics."

Dr. Simon Baruch, of New York City, by invitation, read a paper entitled, "The Nauheim Method of Bath."

On motion of Dr. Albert Warren Ferris, Prof. Antony and Mr. Herbert Ant were voted the privileges of the floor.

Dr. Joseph H. Pratt, of Boston, Dr. Nathaniel Bowditch Potter, of New York City, Dr. Henry A. Wolff, of New York City, Dr. Malcolm Woodbury, of Clifton Springs, Dr. Hubert Schoonmaker, of Clifton Springs, Mr. Herbert Ant, of Saratoga Springs, Dr. John M. Swan, of Rochester, and Dr. Simon Baruch, of New York City, spoke.

Dr. Albert Warren Ferris moved that the privilege be given those, who had not spoken to publish remarks as made in the discussion of the papers. The Chair ruled that remarks that had not been made on the floor at the meeting could not be published as discussion of the papers.

Dr. Charles C. Sutter, of Rochester, read a paper entitled, "A Study of the Cerebro-spinal Fluid in Twenty-five Cases of Cerebro-spinal Syphilis." Dr. W. A. Groat, of Syracuse, Dr. Moses Keschner, of New York City, Dr. Malcolm Woodbury, of Clifton Springs, and Dr. Charles C. Sutter, of Rochester, spoke.

Dr. Heffron asked the Secretary, Dr. John M. Swan, of Rochester, to take the chair.

Dr. L. Duncan Bulkley, of New York City, read a paper entitled, "Medical Aspects of Cancer." Dr. Arthur F. Chace, of New York City, Dr. Simon Baruch, of New York City, Dr. John M. Swan, of Rochester, and Dr. L. Duncan Bulkley, of New York City, spoke.

Third Session, May 17, 1916.

The meeting was called to order at 2:30 P. M. Dr. John L. Heffron, of Syracuse, in the chair. Dr. George W. Dewey, of Minnesota, was present as a guest. Dr. Arthur F. Chace, of New York City, nominated Dr. John M. Swan, of Rochester, for chairman of the Section on Medicine for the coming year. The nomination was seconded. It was moved and seconded that the chiarman cast one ballot for Dr. John M. Swan for chairman of the Section on Medicine for the coming year. Carried. The chairman declared Dr. Swan elected. Dr. John R. Williams, of Rochester, nominated Dr. Arthur F. Chace, of New York City, for secretary of the Section on Medicine for the coming year. The nomination was seconded. It was moved and seconded that the chairman cast one ballot for Dr. Arthur F. Chace for secretary of the Section on Medicine for the coming year. Carried. The chairman cast one ballot for Dr. Arthur F. Chace, who was declared elected.

Dr. Joseph H. Pratt, of Boston, by invitation, read a paper entitled, "The Diagnosis and Clinical Characteristics of Gout."

Dr. Morris S. Fine, of New York City, by invitation, read a paper entitled, "The Determination of Uric Acid in the Blood and Remarks Concerning Its Value."

Dr. Nellis B. Foster, of New York City, read a paper entitled, "The Metabolism in Gout."

Dr. Arthur F. Chace, of New York City, read a paper entitled, "The Treatment of Gout." Dr. Nathaniel Bowditch Potter, of New York City, Dr. Thomas W. Jenkins, of Albany, Dr. Nelson K. Fromm, of Albany, Dr. Fenton B. Turck, of New York City, Dr. L. Duncan Bulkley, of New York City, Dr. Morris S. Fine, of New York City, Dr. Nellis B. Foster, of New York City, and Dr. Arthur F. Chace, of New York City, spoke.

Fourth Session, Thursday, May 18, 1916.

The meeting was called to order at 9:50 A. M. Dr. John L. Heffron, of Syracuse, in the chair. Dr. Tom A. Williams, of Washington, was present as a guest.

Dr. Tom A. Williams, of Washington, by invitation, read a paper entitled, "Functional and Organic Differentia in Nervous Diseases as Shown by Cases." Dr. Malcolm Woodbury, of Clifton Springs, Dr. Thomas W. Jenkins, of Albany, and Dr. Tom A. Williams, of Washington, spoke.

Dr. W. Gilman Thompson and Dr. William H. Sheldon, of New York City, read a paper entitled, "Tobacco and Blood Pressure." Dr. John L. Heffron, of Syracuse, Dr. Tom A. Williams, of Washington, Dr. W. H. Sheldon, of New York City, Dr. Nathaniel Bowditch Potter, of New York City, and Dr. W. Gilman Thompson, of New York City, spoke.

Dr. Charles G. Stockton and Dr. John L. Butsch, of Buffalo, read a paper entitled, "Studies in Acidosis."

Dr. John R. Williams, of Rochester, read a paper entitled, "Recent Studies in Diabetes Mellitus." Dr. Nathaniel Bowditch Potter, of New York City, and Dr. John L. Heffron, of Syracuse, spoke.

The Section adjourned at 12:25 P. M.

John M. Swan, *Secretary.*

MINUTES OF THE SECTION ON PEDIATRICS.

Tuesday, May 16th, 2 P. M.

Joint Session with Sections on Medicine and Public Health.

Secretary Section on Medicine acted as Secretary (see minutes Section on Medicine).

Wednesday, May 17th, 9:30 A. M. Casino Parlor.

Joint Session with Section on Surgery.

Secretary Section on Surgery acted as Secretary (see minutes Section on Surgery).

Wednesday, May 17th, 2 P. M.

Meeting called to order by the Chairman, Dr. DeWitt H. Sherman, of Buffalo.

In the absence of the Secretary, Dr. T. Wood Clarke, of Utica was appointed secretary pro tem.

Election of officers, Dr. Pisek nominated Dr. Edward J. Wynkoop, of Syracuse, Chairman.

Dr. Roby moved that the nominations be closed. Carried.

Dr. Hermann moved that the Secretary pro tem be authorized to cast a unanimous ballot for Dr. Wynkoop. Carried unanimously.

The Secretary pro tem reported that he had cast such a ballot, and the Chairman announced Dr. Wynkoop elected Chairman.

Dr. Scott nominated Dr. T. Wood Clarke, of Utica, Secretary. The Chairman was authorized to cast a unanimous ballot for Dr. Clarke. The Chairman announced Dr Clarke elected.

Dr. Clarke moved that Dr. Godfrey R. Pisek, of New York be elected chairman of a committee of three to make arrangements for a clinical day to be held in New York in the autumn of 1916, Dr. Pisek to have the selection of the other two members. Carried.

Dr. Scott moved a vote of thanks to Dr. Sherman for his services as chairman of the section. Carried.

SCIENTIFIC SESSION.

"Achondroplasia, Its Differentiation from Rickets and Other Conditions," Charles Hermann, M.D., of New York. (Lantern slides.)

Discussed by Dr. George D. Scott, of New York.

"A Case of Luekæmia in a Boy, with Some Observations on Benzol," Floyd S. Winslow, M.D., of Rochester and Walter D. Edwards, M.D., of Rochester. (By invitation.)

Discussed by Drs. Joseph Roby, of Rochester; William A. Groat, of Syracuse; and Charles G. Kerley, of New York City.

"The Cell Count of Cerebro-spinal Fluids," Joseph Roby, M.D., of Rochester.

Discussed by Drs. William A. Groat, of Syracuse; T. Wood Clarke, of Utica; Josephine B. Neal, of New York City.

"Eczematous Conditions in Infants and Young Children," Charles G. Kerley, of New York City.

Discussed by Drs. Godfrey R. Pisek, of New York; Charles Hermann, of New York.

"Diagnosis and Treatment of Hypertrophic Stenosis of the Pylorus in Children," Alfred Hand, Jr., M.D., of Philadelphia, Pa. (By invitation.)

Discussed by Drs. Godfrey R. Pisek, of New York; Edward W. Peterson, of New York; Charles G. Kerley, of New York; and T. Wood Clarke, of Utica.

"Over-Medication in Infants," William C. Todt, M.D., of Oswego. Read by Title.

Thursday, May 18th, 9:30 A. M.

The Chairman, Dr. Sherman in the Chair.

"The Early Diagnosis of Potts Disease," Stephen L. Taylor, M.D., of Kenwood; and Byron C. Darling, M.D., of New York.

"A Scheme for State Control for Dependent Infants," Henry Dwight Chapin, M.D., of New York.

Discussed by Drs. T. Wood Clarke, of Utica; and DeWitt H. Sherman, of Buffalo.

"Pin Worms as a Cause of Appendicitis," Alfred W. Armstrong, M.D., of Canandaigua.

Discussed by Drs. Frederick H. Flaherty, of Syracuse; Edward W. Peterson, of New York; Henry D. Chapin, of New York; and DeWitt H. Sherman, of Buffalo.

"Typhoid Fever in Children," George C. Sincerbeaux, of Auburn.

T. Wood Clarke,
Secretary pro tem.

MINUTES OF THE SECTION ON PUBLIC HEALTH, HYGIENE AND SANITATION.

Tuesday, May 16th, 2 P. M.

This session was held in conjunction with Medicine and Pediatrics (see minutes Section on Medicine.)

Wednesday, May 17th, 9.30 A. M.

Meeting called to order at 9:30 A. M., and because of inadequate attendance, the Session was not held until 11 o'clock, when Dr. Lee K. Frankel presented his address. The paper by Mr. Benjamin C. Marsh, by special request, was presented at the Tuesday afternoon session. Dr. Williams and Dr. Roby were called away and their papers were read by title. Dr. Fronczak's paper was discussed by Dr. Bissell, of Buffalo and Dr. McElroy, of New York. Section adjourned until 2 P. M. Upon being reconvened, the election of officers of the section for the ensuing year was made the first order of business. Dr. J. M. Van Cott, of Brooklyn, was nominated for Chairman by Dr. Leary, of Rochester. Nomination declined. Dr. Linsley R. Williams, of Albany, named by Dr. Webster as Chairman and unanimously elected. Dr. William G. Bissell, of Buffalo, was nominated for Secretary by Dr. Prest and unanimously elected. It was moved by Dr. Frank Overton, of Patchogue, that the Council be requested at the next meeting to provide quarters and arrangements adequate to the importance of this section. Carried after general discussion.

SCIENTIFIC SESSION.

"Health Center Field Work," Arthur C. Schaefer, M.D., Buffalo.

"Dispensary Features of the Health Center Plan as Applied by the Department of Health of Buffalo," Walter S. Goodale, M.D., Supt. Bureau of Hospitals, Buffalo.

"The Education of Health Officers," Frank Overton, M.D., Patchogue.

"Contract Practice," John V. Woodruff, M.D., Buffalo.

"The Relation of the Medical Profession to the State," Otto V. Huffman, M.D., Secretary of Faculty, Long Island College Hospital, Brooklyn.

Dr. Schaeffer's paper was discussed by Dr. Henger. Dr. Goodale's paper was read by title. Dr. Overton's paper was discussed by Doctors Denno, Duryee, Fronczak, Woodruff, Deane, Leary, Schaeffer and Van Cott. Dr. Woodruff's paper was discussed by Doctors Overton, Webster, Henger, Deane and Schaeffer. Section adjourned until 9:30 A. M., May 18th.

Thursday, May 18th, 9:30 A. M.

On being called to order, it was found that but one member was present beside the officers and gentlemen who had been invited to present papers and by general agreement, the meeting was adjourned sine die.

H. G. Webster,
Secretary.

County Societies

MEDICAL SOCIETY OF THE COUNTY OF ESSEX.

Semi-Annual Meeting, Elizabethtown, N. Y.,
June 6, 1916.

The meeting was called to order at the Deer's Head Inn, at 2:15 P. M. The President, Dr. M. H. Turner in the chair.

The following members were present: Drs. L. G. Barton, L. G. Barton, Jr., G. W. Bond, G. J. Culver, Jr., P. J. Cummins, T. J. Dowd, J. H. Evans, C. S. Faulkner, G. L. Knapp, G. E. Miller, N. H. Liberty, C. R. Payne, W. T. Sherman and M. H. Turner. Dr. Thomas Cummins, of Plattsburg, and Dr. Albert A. Wheelock, of Stamford, Conn., were present as guests.

Minutes of the last meeting were read and approved.

The Secretary reported that Dr. C. S. Faulkner, of

Elizabethtown, had been duly transferred from the Chenango County Society to this Society. He also reported the death of one member since the last meeting, Dr. Thomas A. Wasson, late of Elizabethtown, who died on November 12, 1915.

The President appointed Drs. J. H. Evans, L. G. Barton, Jr., and C. R. Payne, a committee to draft resolutions of regret at the death of Dr. Wasson.

SCIENTIFIC PROGRAM.

Symposium on Acute Abdominal Lesions:

"Etiology and Symptoms," John P. J. Cummins, M.D., Ticonderoga.

"Differential Diagnosis," Lyman G. Barton, Jr., M.D., Willsboro.

"Treatment," Lyman G. Barton, M.D., Plattsburg.

Thomas Cummins, M.D., Port Henry and Albert A. Wheelock, M.D., Stamford, Conn., also spoke briefly.

CAYUGA COUNTY MEDICAL SOCIETY.

Regular Meeting, Auburn, N. Y., June 8, 1916.

The Scientific Session was called to order at the Woman's Union, at 8:30 P. M.

"Malignancy in Surgery of the Neck," Martin B. Tinker, M.D., President Medical Society of the State of New York, Ithaca.

"State Society Work," Wm. Mortimer Brown, M.D., President Seventh District Branch, Rochester.

QUEENS-NASSAU MEDICAL SOCIETY.

Semi-Annual Meeting, Mineola, N. Y., Tuesday, June 6, 1916.

The meeting was called to order in Nash's Hotel at 2:30 P. M.

After reading the minutes of the previous meeting, the following members were elected: Drs. Albert C. Barge, Serafino Genovese, Louis F. Licht, James T. Tibbetts, A. F. A. Wiggers, and Robert V. Williams.

SCIENTIFIC SESSION.

"The Desirable Conception of Cancer and its Relation to Early Diagnosis," William Cavan Woolsey, M.D., Brooklyn.

"Functions of the Department of Health," John H. Barry, M.D., Long Island City.

A general discussion followed.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

1915 Collected Papers of the Mayo Clinic, Rochester, Minn. Octavo of 983 pages, 286 illustrations. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, $6.00 net; Half Morocco, $7.50 net.

Diseases of the Eye. By George E. de Schweinitz, M.D., LL.D., Prof. Ophthalmology, University of Pennsylvania. Eighth Edition, Thoroughly Revised and Enlarged. Octavo of 754 pages, 386 text illustrations, and seven lithographic plates. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, $6.00 net; Half Morocco, $7.50 net.

Surigical and Gynecological Nursing. By Edward Mason Parker, M.D., F.A.C.S., Surgeon, Providence Hospital, Washington, D. C., and Scott Dudley Breckinridge, M.D., F.A.C.S., Gynecologist, Providence Hospital. 134 illustrations in text. Price, $2.50. Philadelphia and London, J. B. Lippincott Company, 1916.

International Clinics, Vol. II., 26th Series, 1916. Philadelphia and London: J. B. Lippincott Co.

Obstetrics, Normal and Operative. By George Peaslee Shears, B.S., M.D., Prof. Obstetrics and Attending Obstetrician New York Polyclinic Medical School and Hospital; Formerly Instructor Obstetrics, Cornell Medical College; Attending Obstetrician at the New York City Hospital. 419 illustrations. Price, $6.00. J. B. Lippincott Co., Philadelphia and London, 1916.

Transactions of the American Gastro-Enterological Association, Eighteenth Session held at Baltimore, Md., May 10, 1915.

Book Reviews

Dorland's American Pocket Medical Dictionary. Edited by W. A. Newman Dorland, M.D., editor "American Illustrated Medical Dictionary." Eighth edition, revised and enlarged. 32mo of 677 pages. Philadelphia and London. W. B. Saunders Company, 1913. Flexible leather, gold edges, $1.00 net; thumb index, $1.25 net.

This pocket dictionary is a handy little volume, four by six and one-half inches in size. Though it contains nearly 700 pages of clear and very readable type, the use of thin paper and flexible leather binding results in a book of less than an inch in thickness. This results in a truly "pocket" dictionary. It is most complete, including the latest terms. Though the definitions necessarily arc brief they are concise. A considerable number of valuable tables are included, grouping correlated facts in a convenient form for quick consultation. A very valuable little book for the student who does not require a larger and more extended dictionary. H.

Essentials of Laboratory Diagnosis, Designed for Stúdent and Practitioners. By Francis Ashley Faught, M.D. Fifth Edition. Price $3.00. F. A. Davis Company, Philadelphia, Publishers.

A surprising amount of information is contained in this comparatively small laboratory manual. The author has the gift of expressing himself clearly in a very few words. The book does not pretend to be an exhaustive treatise on laboratory methods, but describes in a practical manner the standard tests which any physician might undertake to do for himself, including the simpler serological and bacteriological methods. The fifth edition eliminates most of the discussion of the significance of the various tests. Perhaps what little was retained was for the purpose of illustration, but in the opinion of the reviewer it might better have been omitted entirely, as it is so incomplete as to be rather misleading than instructive. The section on sphygmomanometry is good, but seems out of place in a laboratory manual, while the four pages ending the chapter with a consideration of sphygmography must have been inserted merely to avoid inconsistency. As a working guide in the laboratory the book should find a wider use than most of the more pretentious works on the subject. T. H.

A Nursing Manual for Nurses and Nursing Orderlies. By Duncan C. L. Fitzwilliams, M.D., Ch.M., F.R.C.S., Surg.-in-Charge Out-Patients and Lecturer Clinical Surgery, St. Mary's Hospital. Price, $2.00. Oxford University Press, 35 W. 32d Street, New York City. London: Henry Frowde, Hodder & Stoughton, Warwick Square, E. C. 1914.

This little book, which "endeavors to include all the essentials which a nurse, nursing orderly, or Red Cross worker, should know," considers anatomy, physiology, the nature, symptoms and treatment of various disease conditions, with some emphasis on the nurse's part in their care. The book is so arranged that the common diseases are associated with the anatomical and physiological description of the organs concerned. The chapter on "Miscellaneous First Aid" is devoted particularly to field work. The book covers a wide field, but, like the butter on the boarding-school bread, it is spread pretty thin. T. H.

THE MEDICAL CLINICS OF CHICAGO, Vol. I, No. 1. These clinics will be devoted exclusively to Internal Medicine and will appear bimonthly, six numbers to a volume. 1915. Price in paper, $8.00—cloth binding, $12.00. W. B. Saunders Co., Philadelphia and London.

There is a fascination about concrete case reports that is not easy to explain, unless it is the added personal note that makes of dry facts a story that lives—or has lived. The element of reality distinguished it from the hypothetical patient of the text-book, that composite creation so rarely exactly duplicated in real life. A medical audience will turn with renewed interest from a paper on splenomegaly to hear about the man with the big spleen. So with the Medical Clinics of Chicago, one may enlarge his medical experience in an easy chair, for here are sick folk told about in detail. The conditions described, some rare and all interesting, are for the most part worked up with at least enough thoroughness to make the diagnosis beyond question.

The comments and questions of "Visitor" on the passing clinic are illuminating. They illuminate "Visitor." Sherlock Holmes may be dead, but not so Dr. Watson, for we know where he lives and what he calls himself.

There is a wider difference of opinion among physicians about matters of therapy than about methods of diagnosis. Not all readers will agree upon the propriety of allowing sweet breads and calves brain to a typhoid patient (not highly recommended but suggested), of considering a blood pressure of 190 an indication for bed and a milk diet, of allowing a patient with a probable acute endocarditis to get up and leave the hospital after two weeks, or of starving a patient with mild catarrhal jaundice for five or six days. However, those who do approve will likely enough dissent when it comes to certain other measures recommended, which to the reviewer seem wise.

A most interesting clinic is that of Dr. Charles L. Mix, on brain tumor, the ophthalmological aspect being fully discussed in a subsequent presentation by Dr. Tivnen. T. H.

THE TREATMENT OF ACUTE INFECTIOUS DISEASES. By FRANK SHERMAN MEARA, M.D., Ph.D., Professor Therapeutics Cornell University Med. Coll. New York; Attending Physician Bellevue Hosp.; Associate Attending Physician St. Luke's Hosp., New York. Macmillan Co., New York, 1916. Price, $3.50. All rights reserved.

An excellent addition to the recent group of American works on therapeutics is found in Dr. Meara's book on the "Treatment of Acute Infectious Diseases." The author aims to state definitely his own views on the best method of handling these conditions, and, as he states in his preface, the work is "didactic rather than critical." There is nothing dogmatic about it, however, and his opinions are largely substantiated by sound scientific reasoning. Fads and hobbies are conspicuous by their absence. The high caloric feeding of typhoid patients should no longer be considered a fad. The author's faith in the value of complement fixation with miscellaneous bacterial antigens is perhaps not shared as yet by the majority of bacteriologists.

A thoroughly satisfactory feature of the book is the attention given to the details in the management of patients, such details as are ordinarily left to the nurse or attendant. The importance of the proper care of the mouth, nose, skin, etc., is emphasized and specific directions are given as to how this should be accomplished. The proper measures to be taken during convalescence are also fully described.

At the end of each chapter is a full summary of the treatment of the disease under consideration, variations and details included. These summaries not only summarize, but make it very easy to find anything that may be wanted.

While no two physicians hold identical opinions about treatment, there will be little difference of opinion among modern therapeutists on the general soundness and wisdom of the directions in Dr. Meara's book. As it is also readable and convenient, it should find a wide field of usefulness. T. H.

HOW TO LIVE, RULES FOR HEALTHFUL LIVING BASED ON MODERN SCIENCE, Authorized by and Prepared in Collaboration with the Hygiene Reference Board of the Life Extension Institute, Inc. By IRVING FISHER, Ph.D., Chairman and EUGENE LYMAN FISK, M.D. Funk & Wagnalls Co., New York and London. Price, $1.00.

This little book, which has back of it the weight of authority of a large number of the most eminent physicians and hygienists in the country, condenses in a few pages a common sense review of the modern scientific ideas of personal hygiene.

It admirably fulfills its purpose of furnishing a concise guide to healthful living and may be well recommended by physicians to their more intelligent patients. Physicians themselves, while undoubtedly familiar with most of the facts presented, will find in it a stimulus to utilize more freely in their daily work the precepts of right living, which can be replaced by no drugs. The book takes an unequivocal stand on the harmfulness of alcohol and tobacco, supporting its stand with argumentative appendices containing specific references to the work upon which the opinions are based. T. H.

PRACTICAL CYSTOSCOPY AND DIAGNOSIS SURGICAL DISEASES OF THE KIDNEYS AND URINARY BLADDER. By PAUL M. PILCHER, M.D., Consult. Surg. Eastern Long Island Hospital. Second edition, thoroughly revised and enlarged. Octavo, 504 pp., 299 illustrations, 29 in colors. Philadelphia and London: W. B. Saunders Co., 1915. Cloth, $6.00 net; half morocco, $7.50.

This is a well written and finely illustrated book of 500 pages. Nearly a hundred pages are given to practical, minutely detailed descriptions of the various types of cystoscopes, along with suggestions for their care and use.

The various vesical lesions are well pictured by photographs and colored plates.

The chapters on pyelography are necessarily incomplete, as this work is still in a developmental stage, and newer and more satisfactory remedies for injection into the renal pelvis are being brought to our attention. The discussion of the surgical diseases of the kidneys and bladder add to the value of this book.

We know of no better book, written in this country, for the beginner in cystoscopy, and the expert will find many points of interest. J. S. R.

IN A FRENCH HOSPITAL. Notes of a Nurse. By EYDOUX-DEMIANS. Translated by Betty Yeomans. Duffield & Co., New York. 1915. Price, $1.00 net.

This is a congeries of impressionistic stories about the war, the episodes having to do with persons and events in a French hospital. The stories are supposed to be the notes of a nurse, or to have been founded upon such notes. Doubtless the manufacture of many sentimental books will be one of the most frightful results of the war. A. C. J.

Deaths

S. CARRINGTON MINOR, M.D., New York City, died June 16, 1916.

J. SEWARD WHITE, M.D., South Glens Falls, died June 19, 1916.

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ORIGINAL ARTICLES

THE VALUE AND LIMITATIONS OF PHYSIOLOGICAL THERAPEUTICS.*

By JOHN M. SWAN, M.D.,

ROCHESTER, N. Y.

I WISH to say at the outset that I am entirely in accord with the statements made last evening by Dr. Walter B. James. Nevertheless, I wish to approach my subject: "The Value and Limitations of Physiological Therapeutics," more from the viewpoint of its limitations than that of its value. Perhaps I should say that I wish to point out some errors that should be corrected, and others that should be avoided.

If one who has depended exclusively on drugs for the treatment of chronic disorders, makes a careful study of the results of treatment by various physiological methods, he will be astonished to find what can be done for the invalid or the semi-invalid without the use of medicines. The methods of the physiological therapeutist have the sanction of antiquity. Even in the time of Homer, the Æsculapian shrines at Epidaurus and Kos were widely known and extensively patronized. There are two publications which well describe the methods in vogue in these ancient sanitaria; one by Caton[1] and one by Alice Walton.[2] From these studies the probable method of procedure followed by one of the ancient Greeks who went to Epidaurus for treatment may be imagined.

The patient, on arriving, probably had an interview with the priest, or one of the other officials, and arranged about his accommodation with some secular person. He performed certain rites, bathed in the sacred fountain, and offered sacrifices under the proper direction. The poor man gave his cake, the rich his sheep or pig or goat. When night came the sick man brought his bed clothing into the abaton, and reposed on his pallet, putting usually some small gift on the table or altar. An attendant having lighted the sacred lamps, the priest entered and recited the evening prayers to the god, entreating divine help and divine enlightenment for all the sick assembled there; he then collected the gifts which had been deposited on altars and tables; later the attendant entered, put out the lights, enjoined silence, and commanded every one to fall asleep and to hope for guiding visions from the god. The abaton was a lofty and airy sleeping chamber, its southern side being an open colonnade. It was singularly like the "shelter balcony" now used in treating phthisis. This provision for an abundance of pure fresh air for the sick by day and night, which is so beneficial now, was undoubtedly so then, and probably brought much credit to the god and his shrine. According to the inscriptions the god frequently appeared in person, or in visions, speaking to the sick man or woman concerning their ailments. Whether these visitations were merely hallucinations in individuals whose imaginations had been excited, or whether some priest in the dim light acted the part of Asklepios;

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

whether the patient was put under the influence of opium or some other drug provocative of dreams, or whether by some acoustic trick, the priests caused the sick to hear spoken words which they attributed to the deity, it is difficult now to say.

The valley of the Hieron was the habitat of a large yellow serpent, perfectly harmless, and susceptible, like most snakes, of domestication. A number of these creatures dwelt in the sanctuary, perhaps in the vaults of the tholos. They were reverenced as the incarnation of the god. The sick were delighted and encouraged when one of these creatures approached them; and were in the habit of feeding them with cakes. The serpents seem to have been trained to lick with their forked tongue any ailing part. The dog also was sacred to Asklepios, and the temple dogs in like manner were trained to lick any injured or painful region of the body.

The suppliants spent the day in rest or exercise, as was most agreeable to them. It must be remembered that the precinct was as beautiful as the noblest works of Greek art could make it; moreover, large and lofty trees formed a shady grove, protecting from the sun heat, while the soft breezes and the sweet pure air of the mountains formed in themselves a potent agency for the restoration of health. The patient had much around him to please and interest—the beautiful buildings, rich with sculpture and with color, scores of statuary figures and groups representing Asklepios and other divinities or subjects from the old Greek mythology in marble and bronze. Artistic reliefs, busts, and full-length figures of noted priests and physicians, ex-votos, stelæ, and tablets recording the marvellous cures affected by the god, colored bas-reliefs, paintings, shrines, exedræ, decorative cases and fountains, beautified and added interest to the precinct. Shelter-seats, arranged in semi-circles, of beautiful white marble, were so placed as to avoid sun or wind; they were convenient for conversation, or for listening to a reader or a musician.

Those of the sick, who were not too ill, would visit the temple of Apollo, or climb the neighboring hill sacred to the infancy of Asklepios. Others would engage in the exercises of the gymnasium or the stadium; if unable to participate in these more active pursuits, they would become spectators of them. The plays in the theatre would often make half a day pass pleasantly. We know that both priest and patient went there constantly. Music, religious dances, processions, and festivals would vary the interest and occupations of the day. The studious man could occupy himself with manuscripts from the library, and, reposing in the shelter seats, would dream over history, plays, or poetry. The solemn rites of the temple, the sacrifices, the study of the multitudinous tablets would all tend to a calm and hopeful condition of mind, eminently helpful to recovery from slight forms of illness even though no direct medical treatment were pursued.

There can be little doubt that many of the sick benefited greatly by the rest, the pure air, the simple diet, the sources of mental interest, the baths, exercise, massage and friction, and in later days by the actual medical treatment adopted.

Not infrequently it would happen that persons with real and incurable diseases came to Hieron and got worse, notwithstanding their sacrifices and petitions to the god. How the priests excused the impotency of their deity on these occasions we do not know; perhaps some lack of merit, purity, or sanctity in the individual may have been imputed. We know that in some cases, the honor of Asklepios was saved by sending the unfortunate invalid to some distant shrine; but, of course, it happened that in some instances the patient died. Now, according to the religion of the Greeks, two events were considered to desecrate in the most dreadful manner any hallowed precinct, namely, birth and death; neither of these must occur within any sacred enclosure.

While there was probably much kindliness, humanity and real help for the sick at these shrines, and much actual benefit resulted, notwithstanding the superstition on which all was based, still, in this one respect, Greek tradition and ceremonial were a cause of the most gross inhumanity. The unhappy visitant whose vital powers were finally declining was received and domiciled in the abaton, but when he failed to improve and was seen by the priests and attendants to be obviously dying, instead of being tenderly nursed and soothed, he was removed from his couch, dragged across the precinct to the nearest gate, expelled, and left to die on the hillside unhelped and unattended. Asklepios had rejected him, and no priest or minister of the god must defile himself by any dealings with death. One cannot but hope that the sympathy and humanity which exist naturally in the hearts of most men and all women, found some means of helping these unhappy beings, and that when death seemed probable such sufferers were conveyed to a hostel outside the precinct, and allowed to die in peace there. A like superstition existed regarding birth. Many a poor woman, who was anticipating maternity and who had been hoping for relief from some ordinary ailment, was suddenly and mercilessly expelled from the precinct just when she needed help and comfort most.

The above description of the methods employed at the Æsculapian shrines extensively paraphrased from Caton's book,[1] it seems to me, represents the value and nearly all of the dangers of physiological therapeutics today. The various forms of modern hydrotherapy, gymnastics, massage, passive motion, etc., are the direct descendants from this ancient cult, which flourished so long ago in the hills of the Argolic peninsula.

It must not be supposed, however, that it will do today to tell a patient to go to a health resort "for a little rest" or to "take a few baths." The details of the various forms of treatment employed must be studied and understood and careful prescriptions must be written for the kind and duration of the treatment desired.

In this day of scientific research into the causes of the various effects following different forms of treatment it will no longer suffice to say as was said many thousand years ago, that the value of the waters at Epidaurus depended upon some drops of the Gorgon's blood which had been given Æsculapius by Athæna. Nor will it do to ascribe the benefits to changes in metabolism, when no metabolic studies have been made; to influences on skin, heart and blood pressure, not backed up by figures, to influences of salts, gas, etc., in the water, not confirmed by control experiments with plain water. Let me quote some sentences from a paper published in 1910[3]:

"It is a well-known fact that carbonic acid baths have a special action on two organs of the human body—the heart and the skin. The heart is strengthened by the increased flow of blood in the coronary arteries due to the action of the carbonic acid on the vasomotor nerves and the increase of blood in the coronary circulation."

There is no known method for demonstrating increased flow of blood in the coronary arteries nor of demonstrating the action of carbonic acid on the vasomotor nerves.

"During the past year I made a number of tests with cases of high blood pressure, and with one or two exceptions found a decrease of one to four mercurial mm."

Repose in a horizontal position will reduce blood pressure from one to four mercurial millimeters; bath or no bath.

"By this increased circulation metabolism is improved, congestion relieved, waste and toxic products removed and the action of the heart very much strengthened."

How can we tell whether congestion is relieved, and that waste and toxic products are removed? Where are the metabolism studies to show that these statements are true?

"To the presence of these salts is due the activity and great therapeutic value of these Nauheim baths. The carbonic acid, as we know, greatly accelerates the action of the calcium and sodium salts."

I have never seen the details of any experiments which have been made to substantiate these claims.

In 1910, Huchard[4] said, referring to Nauheim: "This station receives all cardiopathies, it treats the most variable cases, the valvular, arterial, or functional disturbances, cases of hypertension as well as cases of hypotension, cardiacs and pseudocardiacs, angina pectoris, all the arrhythmias, all the tachycardias, all the palpitations; it resolves the valvular exudates, it retracts the heart, and, although it contains too much chlorid, it is sedative, to become excitant or tonic following the needs of the case. We have read all the works of Schott, and nowhere have we met precise observations, always affirmations, never facts. I protest against similar exaggerations, and my protestation unfortunately depends upon several deaths of cardiacs on their return from Nauheim. I am not the enemy of carbogaseous baths, which ought to render very great service in well determined cases, but I am the enemy of a systematic medication for all cardiacs."

Mackenzie[5] has stated that the same results obtained at Nauheim can be obtained with fresh water. In order to test this matter I made the following observations: The baths were given in an institution which employed a strong natural brine, which required dilution with five volumes of water in order to make, approximately, a 2 per cent sodium chlorid and 0.68 per cent calcium chlorid brine. The details of the administration of these baths will be found in a paper, which I read before this section in 1911.[6]

In the case of a man, aged fifty-one years, who was suffering from a moderate amount of cardiac hypertrophy with beginning arteriosclerosis, the water in the fourth bath instead of the usual one-sixth dilution of brine was fresh. The patient observed no difference, making the remark as he got into the tub: "This water is unusually buoyant, is it not?" The effect of the bath was exactly the same as that of the previous baths given, so far as could be told by the patient's sensations. The effect on the pulse rate of the baths was as follows:

First bath: Pulse before, 62; pulse during, 64; pulse after, 60.

Second bath: Pulse before, 70; pulse during, 72; pulse after, 68.

Third bath: Pulse before, 70; pulse during, 64; pulse after, 58.

Fourth bath, in which the water was fresh instead of salt: Pulse before, 72; pulse during, 72; pulse after, 68.

In the case of a woman, aged thirty-six years, who was suffering from a functional neurosis, with attendant myocardial weakness, the water in the fourteenth bath was used fresh instead of the usual one-sixth dilution of the brine. The effect on this patient was exactly the same as that of the other baths. She noticed no difference, at least made no remark about any difference, in the character of the water. The effect of the bath was, so far as could be told by the patient's sensations, exactly the same as that of the others. The pulse record was as follows:

Eleventh bath: Before, 68; during, 80; after, missed.

Twelfth bath: Before, 80; during, 84; after, 85.

Thirteenth bath: Before, 77; during, 77; after, 72.

Fourteenth bath, in which the water was fresh: Before, 83; during, 80; after 72.

In the case of a woman, aged thirty-three years, suffering from myocardial insufficiency, the water in the second bath, instead of being the usual one-sixth dilution of brine, was fresh. The patient observed no difference between the two baths. The effect of the baths on the pulse rate was as follows:

First bath: Pulse before, 98; pulse during, 98; pulse after, 90.

Second bath: Pulse before, 95; pulse during, 90; pulse after, 89.

In the case of a woman, aged twenty-five years, suffering from myocardial insufficiency, the water in the second bath, instead of the usual one-sixth dilution of brine, was fresh. The patient observed no difference in the two baths. The effect of the baths on the pulse rate was as follows:

First bath: Pulse before, 97; pulse during, 86; pulse after, 86.

Second bath: Pulse before, 80; pulse during, 88; pulse after, 82.

My object in presenting this subject in this manner is not to discredit physiological therapeutics but to endeavor to stimulate those who are engaged in the administration of health resorts to study the effects of the methods employed by every method obtainable, so as to provide some accurate basis for the statements made, so as to get away from mysterious influences whether it be Gorgon's blood or radium, so as to get away from the commercialism which tries to make patients believe that X-springs is the only place in the world where the individual can get well. The Æsculapian shrines of ancient days combined rest, recreation, physical and mental exercise, art, hydrotherapy, massage, psychotherapy, and the influence of fresh air under what at that time may be considered proper supervision. We may be sure that in the beginning, at least, there was no element which would lead to Huchard's protest.

The State Conservation Commission has an opportunity at Saratoga Springs, in my opinion, to develop a great American spa. The experience of centuries is before it for its guidance. It would be a pity to see a repetition here of mistakes already corrected abroad. It would be a calamity to see this great asset promoted according to the methods of the patent medicine vender.

It seems to me that in Saratoga the medical profession has a right to expect the development of an ideal American health resort. Legitimate amusement, carefully planned excursion enterprises, graded and measured walks, hydrotherapeutic institutes, mechanotherapeutic institutes, libraries, art exhibitions, good music and many other things may be developed here so that the chronic invalid may have the best chance conceivable to recover his physiological optimum. The state, in my judgment, could make no more valuable contribution to its people than the demonstration of the possibilities which reside in a health resort conducted through a copartnership of science and liberality.

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*Discussion on Papers by Drs. Baruch and Swan.**

Dr. Joseph H. Pratt, Boston, Mass.: No man in this country has done so much to advance hydrotherapy as our great pioneer, Dr. Baruch. I was pleased to note in a recent paper by Groedel that Dr. Baruch's investigations on the physiological action of carbon dioxide baths have attracted the attention of German authorities on this subject. Dr. Baruch has clearly brought out the importance of studying the action of the salines as well as that of the carbon dioxide and emphasized the fact that the simple carbon dioxide bath is different from the true Nauheim bath.

For over a period of ten years I used carbon dioxide baths at temperatures varying from 95 degrees to 85 degrees in the treatment of cardiac disease. It may be that the results I obtained, or rather the lack of results, were due to the fact that I did not add sodium chloride and calcium chloride to the bath. I followed, however, the teachings of Matthes. It is conceivable that benefit may be obtained with the natural carbon dioxide baths and salines such as are available here in Saratoga which are impossible with the artificial baths.

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* For Dr. Baruch's paper see *N. Y. State Journal of Medicine*, June, 1916, page 279.

As the carbon dioxide gas retains heat, according to Dr. Baruch, it would seem probable that a patient in a natural bath at a given temperature, say 90 degrees, would feel warmer than in an artificial bath quickly prepared in which the temperature of the water was 90 degrees, but the gas cooler.

Patients in an artificial carbon dioxide bath usually require a temperature higher than 93 degrees C. in order to be comfortably warm, unless there is a considerable content of carbon dioxide. Every one with experience knows that the baths rich in carbon dioxide gas seem to the patient after a few minutes immersion to become warmer.

In a study of the action of carbon dioxide baths on the blood pressure I found that at all temperatures at which they have been used in the treatment of heart disease the blood pressure is usually raised in patients with strong hearts. If the blood pressure fell it was suggestive that the heart was weak.

Otfried Müller maintained that the rise in blood pressure was due to the temperature of the bath rather than to the carbon dioxide. But an analysis of my observations showed the average rise of blood pressure was as high at the warmer temperatures (92-95 degrees) as at the cooler (85-89 degrees).

The literature is filled with conflicting views and observations. Some findings apparently indicating beneficial action of the baths may have a different interpretation. Groedel many years ago published sphygmographic tracings taken before and after a course of Nauheim baths. The pulse tracing showed an irregularity before treatment was begun (extrasystoles). After the baths had been taken the pulse was regular. I noted, however, in studying his curves that alternation of the pulse was present after the baths were taken and not before. These tracings then really indicate that the heart of this patient was injured rather than strengthened by the course of baths. Some writers claim that they are a form of exercise, others that they lighten the load of the heart, and thereby rest the heart. The need of additional study is obvious and this requires a clinician trained in physiological methods.

If these baths are to be employed at Saratoga great care must be taken in the selection of cases for treatment, otherwise much harm will certainly be done. The majority of cases referred to me for carbon dioxide baths were in such a condition that rest in bed was clearly indicated.

I believe that if the opportunities of Saratoga are utilized it will be possible to have here a health resort not only the equal of Nauheim, but superior to it in some respects. But if this is to be brought about heart specialists well trained in modern methods and interested in physiological pathology and therapeutics must be in residence here.

I wish to say in conclusion that I agree fully with the critical views expressed by Dr. Swan. I believe that in the past hydrotherapy has suffered more from its over-enthusiastic friends than from its enemies. In fact, they have been its only enemies.

Dr. Nathaniel B. Potter, New York City: I have been much interested in listening to Dr. Swan's very timely emphasis of the value of the proper application of physiological therapeutics just now, when our attention is so focused upon the development of American spas and when true preparedness is really in the air.

Some ten years ago I took a six weeks' cure for chronic gout at Carlsbad, and the reason I was there six weeks was because the first two nearly finished me. But I was much impressed by the tremendous psychic influence of the Carlsbad spa, in every direction, whether it was toward the simple peasant or the Russian plutocrat.

The serious way in which these foreigners coming year after year take their cure is most striking and one must always estimate that psychic influence in some fashion or other and certainly with no small weight.

Another thing which I noticed there was, that the American was psychically influenced his first year very profoundly, moderately his second year, but not much the third year, and he generally went to another spa, if he required such a course of treatment, a fourth year.

Another Americanism I found there was that a great many of the Americans, and especially some of our clever American women, were very much interested and quite gratified by feeling that they had beaten the cure and taken it in eighteen or less days instead of twenty-one days.

A more serious side at Carlsbad is the wonderful development of all these potent psychic influences. The walks at Carlsbad are among the loveliest walks in the world, and they are carefully kept, and the grading of and measured distance wonderful, so nicely adjusted that a man of eighty odd can take his little walk just as well as a boy of fifteen. The food served in the restaurants is well-cooked and, furthermore, you get what you ask for. It is plain, simple food, but yet tasty, and with ample variety.

There is another thing: they make it pleasant for you. They give you excellent concerts. They give you interesting theatrical performances. You can go to dine in a restaurant and see a moving picture or variety show while eating and have other diversions and have a mighty good time—and all of which play a big part in your comfort and pleasure while you are there. It is time to appeal to all our colleagues to help develop our spas in America and especially Saratoga at this time so as to compete fairly.

In the last few years I have been very much interested in one of the instruments of precision for studying the circulation, the sphygmobolometer, devised by Professor Sahli. Among other things, it has taught me that in estimating the circulatory effect of any method of treatment there is a new factor to be reckoned with, viz.: the so-called "arbeit," the work of the pulse, and this factor, which we have guessed at for a number of years, is of value. No one can use such an instrument and determine this dynamic conception of the pulse without being impressed by the extraordinary effect of perfectly insignificant psychic influences upon the circulation, such influences, for example, as answering the telephone, smoking a cigarette.

Although Dr. Swan apologized for his inability to study these cases which he so ably described to us except by the pulse rate, the more I have studied the pulse in the last three years, the more I am inclined to believe that the pulse rate is about as valuable as the blood pressure.

Dr. Hubert Schoonmaker, Clifton Springs: I wish to emphasize the point made by Dr. Baruch that in the treatment of heart disease by the Nauheim method, the temperature of the bath is the most essential factor. To be effective, it should be below the normal zone. The effect of CO_2 may be direct, that is by absorption and that of the salts more than superficial, but it seems to me that the chief value of both gas and salts is that they together make it possible for one to take a cold bath in comfort.

While in the bath, the body of the patient is covered with gas globules which prevent to a considerable degree heat radiation; thus, the normal body temperature is maintained while the lower temperature of the bath is acting on nerve endings, capillaries and deep vessels and the heart is being given a mild gymnastic treatment.

In earlier days, the accepted theory of the physiological action of the Nauheim baths was that capillary dilatation provides a diminished peripheral resistance which in turn lessens the work of the heart. This theory is still accepted, but is supplemented by that of increased myocardial output due to contraction of the deep vessels secondary to stimulation by cold.

I want to emphasize another point, namely, the danger of ordering a routine course of baths without close observation. Particularly is this true in mitral stenosis. It is my conviction based on considerable observation that most cases of mitral stenosis do not respond well to the cold of a routine course, and for this reason: In mitral stenosis the peripheral circulation is essentially poor and slow to respond to stimulation, thus the capillaries do not sufficiently dilate, and there is chilling of the body with a reaction of depression instead of stimulation. Cases of mitral stenosis do best on a short course with temperature not below 92 degrees F.

Dr. H. F. Wolf, New York City: I would like to say a few words against one statement Dr. Schoonmaker made. He spoke of the fact that we have no proofs as to the improvement of the circulation in the coronary arteries. He is right that we have no direct one, but we have an indirect proof. The heart is nourished only in the diastole. If we reduce the frequency of the pulse, the change benefits practically the diastole only, the nourishment of the heart must therefore be greatly improved. On this ground I have pointed out some years ago, that the Nauheim treatment works by improvement of the circulatory condition of the heart, as every CO_2 bath of the proper temperature reduces the pulse rate. If it does not act this way its influence is nil.

A cold bath of 84-88 degrees will reduce the pulse rate as a CO_2 bath, but a patient couldn't stand it. I took such a cold bath for one and one-half hours and found no difference between the two forms of bath.

Whether the addition of salt has any influence at all, I am not willing to deny, it might stimulate the skin strongly, but I do not think that the effect is important. That water with salt absorbs more CO_2 is of no value at all, as we can charge the plain water so well with the gas, that the body is fully covered with many layers of gas bubbles.

Dr. Baruch has told us that the carbon dioxide is better absorbed through the skin when salt has been added. I doubt that this would be of any value. A patient suffering from heart disease has so much CO_2 in his blood that the slight increase through absorption, if there is any, would be of no importance at all.

My assumption that the CO_2 bath works by improving the nutrition of the heart muscle is corroborated by the fact, that diathermia of the heart has given such good results to many investigators.

By diathermia we can increase the temperature of the heart, we can dilate the coronary arteries, and I have published the account of some cases where the immediate result was very good, though naturally according to the pathological condition the permanent results were varying.

Malcolm S. Woodbury, Clifton Springs: Just one point in regard to Dr. Swan's paper. That is the question of the relation of physiological treatment to other types of treatment.

It hardly seems to me that we ought to make a distinct separation. The crux of the whole matter is proper study of cases—the idea of sending patients to this, that or the other institution simply for "physiological therapy" is not correct. The physician should expect from institutional staffs suitable study of cases. He should expect in his correspondence with the physicians having his cases in temporary charge, suitable medical or surgical information based on detailed study, just as he should expect such information from a *hospital* to which his patients are sent for diagnosis.

We should not, then, separate physiological treatment from other types of treatment. Cases must be properly treated, and to treat a case of cardiac disease by the Nauheim or any other physiological method, without due attention to the underlying infection or other etiological factors, is all wrong. Our cases, in other words, must have study, and as the doctor has pointed out, it is in the selection of proper physicians in the institutions that have been described, which will really determine whether or not the line of treatment which is to be laid out is right or wrong.

Mr. Herbert Ant, Saratoga Springs: As chemist for the reservation and the one who has done the experimental work for Dr. Baruch, I think it is proper for me to say a few words with regard to a statement that was made by Dr. Baruch with regard to the relation of carbon dioxide and salt in the bath. I believe, perhaps, the statement was a little bit general.

I made the statement in the report to Dr. Baruch that the addition of the brine, the sodium chloride and the calcium chloride in the artificial bath did have a tendency to hold back the gas, and, therefore, give a better percentage of supersaturation in the artificial bath. But, that is only in the artificial bath. In our natural baths in Saratoga, we have a pressure system that makes it possible for the waters to be delivered to the tub with the carbon dioxide in solution, and it is put there in solution under some pressure.

Now, this gas is in a finely associated condition, and in that condition, without disturbing the water, the gas will be liberated very slowly, and you get the height of efficiency from any supersaturation of gas that might be present. But, if this supersaturation is disturbed by the addition in the tub of any brine, or any additional salts, you are losing gas efficiency; you are disturbing the equilibrium, and losing the effect of the gas.

And so I think that the statement of Dr. Baruch as to the solubility is too general. It is well known among chemists, and you can find it in any chemistry book, and any chemist of any authority will quote tables to show that carbon dioxide is less soluble in solutions of brine than it is in plain water. But, on the other hand, if you have the solution of brine, that is charged and supersaturated with carbon-dioxide gas under pressure, that gas will be liberated slowly from solution. I believe that that is all I have to say on the subject.

I just wanted to correct the general impression that the salts and the addition of brine was an essential factor for the solubility of the gas or necessary for the efficiency of the gas bath.

Dr. John M. Swan, Rochester: Papers that have been published concerning the Nauheim method of treatment of heart disease have variously stated the essential element of the treatment. One author lays stress on the carbon dioxide element as being the most important feature, another on the saline ingredients, the third on the diet and general hygienic regime, etc. I am confident that there is no essential feature. It is the entire regime that does the patient good. The regular hours, the absence of the necessity of answering the telephone, the removal of other small causes of irritation and worry, the proper diet of well cooked and attractively served food, comfortable sleeping quarters and an opportunity to indulge in amusements of a legitimate character. By amusements of legitimate character, I do not mean stock gambling, roulette playing, poker playing, or other exciting forms of recreation. When all of these factors are placed at the disposal of the patient and only under those circumstances will a patient receive the benefit that he expects to receive at a health resort.

Some one has questioned whether the experiment that I made by giving one bath with fresh water in a series of saline baths was legitimate from which to draw conclusions. To be sure not. Such an experiment in order to be scientific should have taken two patients with as nearly as possible the same cardiac condition; the one having the regular carbonated brine bath, the other carbonic-acid gas bath with fresh water. The observations that I have given you merely indicate what may be expected from a more extended series under proper conditions.

I was very glad to hear Dr. Baruch mention the experiments with carbon-dioxide gas and salts, because up to this time I have not read of them. I remember when my paper on "The Effect of Carbonated Brine Baths on Blood Pressure" was published—I think it was three years ago—an Englishman in criticizing it said that my blood pressure work was all wrong because I had gone at it from the wrong point of view, that the real effect on the blood pressure in these cases was due to the inhalation of carbon-dioxide gas. He treated his cases by allowing the patient to breathe a certain amount of carbon-dioxide gas from a cylinder.

One thing which I wish to point out distinctly is that many opinions that have been given concerning the influence of Nauheim baths on diseases of the heart are based entirely on the sensations of the patient and are not in any way confirmed by published scientific observations. The authors, who give these opinions may have in their possession the proper records; but as Huchard has pointed out, they are not available for general study.

It is no more right to treat heart disease with Nauheim baths than it is to give a patient digitalis because he has a heart murmur. The patient must be studied and the treatment ordered only for those cases which are suitable. All of the literature from Nauheim says, for example, that one should never give Nauheim baths to a patient with fever. I know of the case of a child with mitral disease, who responded very well to a series of artificial Nauheim baths. After a time this patient had a second attack of decompensation during the course of an acute infection. The physician under whose care this patient was placed insisted upon giving Nauheim baths in spite of the fever, and, of course, she became progressively worse until the treatment was stopped.

I cannot emphasize too stronglv the point that it is not this bath, or that bath, or the other bath that produces the result in suitable cases. It is the entire hygienic regime of the well regulated health resort that is responsible for the benefit.

Dr. Simon Baruch, New York City: My reference to Mr. Ant's experiments was to artificial CO_2 baths, this is clearly stated in my paper. When I added the brine after the CO_2 water was drawn I was astonished to find that it did not produce much reaction. But he taught me the chemistry of the thing.

He said if you put the brine in first you do not lose CO_2. You find that point also referred to in the *New York Medical Journal* here at your disposal. Now what Mr. Ant wrote me is as follows: "You will note from some of my previous experiments on artificial baths that the addition of the salts seems to retain the gas better, and, therefore, improve the supersaturation." That is what I have claimed. I say here again, if you want to get the Nauheim effect, see that the authorities in charge of Saratoga Springs give you a Nauheim bath and not a substitute for it. You don't want CO_2 baths if you order Nauheim baths; you want the regular salts, put in before the water is drawn, and if you are not careful along that line, you are not going to get any results.

THE TREATMENT OF ANTERIOR POLIOMYELITIS.*

By CHARLTON WALLACE, M.D.,
NEW YORK CITY.

THE treatment of acute anterior poliomyelitis and the conditions arising from it may yield most gratifying results when properly and thoroughly carried out. On the contrary greater discouragements are seldom encountered than the distorted bodies and limbs of the patients who have been neglected. The ignorance of those in guardianship of the afflicted and the prejudice of the physician in attendance against braces, accounts for many of the severest types of deformities. It makes one indignant to see a human being walking around on his hands and knees like a dog, when with a little orthopedic care and attention the erect attitude could be maintained. Two such cases have recently been brought to me, and these unsightly children influenced me somewhat in asking you to listen to a paper upon the subject selected.

It is acceptable that this is a communicable infectious disease, attacking primarily the spinal cord, causing an acute exudative inflammation, congestion and degeneration of the cells of the anterior horn, and atrophy of the peripheral motor nerves and of the anatomical structures receiving their impulses from them. The resulting deformities and disabilities are dependent upon the death of these cells.

The liberty has been taken to classify the treatments under the various periods of the disease, and it will be necessary to cite a few symptoms in order to understand the purposes of the measures advocated. The stages may overlap, but, for convenience they are divided into those of: (1) Onset (2) Apparent paralysis (3) Recovery or convalescence (4) Readjustment or permanent paralysis.

1. Stage of onset: May last several days, may be brief or entirely absent.

The vast majority of the cases observed by the author during the epidemic in New York City in 1907, began suddenly with fever, some nausea or vomiting, constipation, malaise, headache, sometimes convulsions, and pains around the joints and in the muscles; but a few had no general symptoms or they were overlooked, they having been well and healthy before retiring and a limp or loss of power upon arising was the first intimation that they had suffered an attack.

Prevention is the most important thing to be considered. Various carriers have been suggested, but in all probability the human being is the one that offends most frequently. The patient should be isolated for at least six weeks, in a room from which all curtains, rugs, and whatever other furnishings that might catch the dust, have been removed. Those coming in direct contact with the patient should carry out about the same routine as in diphtheria and typhoid fever. The mouth and nose should be kept clean by some mild antiseptic solution. Handkerchiefs, cloths and excreta should be destroyed, and the floors wiped daily with a wet cloth.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

The treatment of the patients symptoms at this time is very important. A thorough evacuation of the bowels by administering castor oil, calomel, or epsom salts, and enema, is not only beneficial to the intestinal tract, but also relieves much of the congestion in the spinal canal. Urotropine in doses of from two to three grains, every four hours, has been prescribed with questionable benefit, for its effect upon the contents of the cerebro-spinal canal. Salol from two to five grains also may be used as a gastro-intestinal disinfectant. Heat over the spine and tender muscles and joints is most efficacious in relieving the pain. For the respiration and heart, atropine and strychnine may be given, and the latter, perhaps, might be continued during the first year for its tonic effect upon the muscles. Absolute rest is an essential feature of the entire treatment during this stage. The patient should be placed upon a bed which permits of no sagging, preferably a fracture bed, and in a room that is kept thoroughly ventilated. Plaster Paris bandages should be applied to the feet in order to prevent contractions of the tendo-Achillis, and the weight of these bandages will also help in combating the efforts of contraction of the flexors at the hips and knees.

2. Stage of apparent paralysis:

When the condition of the patient simulates that of complete paralysis of many groups of muscles and several of the supposedly paralyzed muscles regain their power, it may be called the apparent paralytic stage. Prolonged bed treatment for two or three months, if the onset was severe, prevents back deformities. Daily sponging with alcohol and skin rubbing to avoid decubitus, should not be forgotten. Hot fomentations and baths may be given for the pain during the first week or ten days. In the bulbo-spinal type, all movements should be restricted, especially sitting up. The adult will co-operate in this treatment, but the child may have to have his trunk and lower extremities incorporated in plaster Paris, from his axilla to his toes, or some form of back brace with limb parts attached, in order to control him.

3. Stage of recovery or convalescence:

During this period, which for our purposes is from the third month to the second year, daily muscle massage should be given and manipulations and stretchings of the active muscles are indicated. Braces are used to protect against severe strain of the paralyzed muscles, stretchings of the ligaments about the joints, and to avoid contractures of the healthy ones. Over bracing is preferable during the earlier months, after which it is gradually diminished as the strength of the part returns. Electro-therapeutics may be of some value and should be used during the first year. The farradic or interrupted galvanic currents are suggested. Small doses of strychnine are used as a muscle stimulant.

4. Readjustment or permanent paralysis:

The vast majority have some muscles of the legs permanently paralyzed and one can determine the exact muscles by the loss of voluntary contraction, the disappearance of the belly of the muscle, due to atrophy, or by aid of the electrical current, applied to the individual muscles which will give reaction degeneration. Continued improvement may be expected in the afflicted member perhaps several years after the onset, provided it is correctly braced and supervised. Functional use should be encouraged under the protection of apparatus.

The joints of the supporting machine should be carefully selected, the aim should be to permit motion in the direction of the muscles about the articulations, which have been put out of commission. Theoretically this allows shortening of the ligaments and tendons that receive their nerve supply from the degenerated nerve cells. In other words, every endeavor should be made to maintain the muscle balance of the member in a physiological attitude.

Muscle education is contra-indicated. The attempts to train and to develop paralyzed muscles are not only useless and wasteful, but are detrimental. To give patients setting-up exercises, especially the trunk or back ones, when loss of power occurs on one side of the vertebral column, causes severe rotary lateral curvature. This has been frequently practiced by others and has aggravated the deformity by over developing the well muscles. The sane treatment of these backs is the application of plaster Paris jackets or proper back braces, in order to prevent the deviation. When this has occurred one's efforts at correction causes the patient considerable discomfort and they are not always successful. As previously mentioned prolonged recumbency in a horizontal plane during the earlier months, is a most potent prophylactic agency for such a condition.

If the foregoing mechanical and therapeutic steps are followed, many unsightly malformations will not occur and at least one-fifth of the operations upon this class of patients will be unnecessary, because about this proportion of them are done for contractures.

The operative treatment for the disabilities and deformities following anterior poliomyelitis, offers a most prolific field but no case should be operated upon without a careful study of it and one's self should be convinced that material benefit will be rendered to the patient. One must look forward to the time when the patient arrives at the age of deciding matters for himself and will upon his own responsibility, discard all apparatus no matter what his condition may be. It is one's duty to have him in the best possible shape for locomotion.

Multiple contractures existing in an individual should be treated by stretchings of some of the muscles and tenotomizing sub-cutaneously of the strongest ones. It is often advisable to do this at separate times, because of the risk to the patient when done too strenuously. It often happens, that the power of dorsal flexion of the foot is regained, although the extensors seem paralyzed because of the severe equinus, when the tendo-Achillis tendon is lengthened. The preference is again given to the sub-cutaneous method and care should be taken not to bring the foot up to more than two or three degrees less than a right angle to the leg.

Tendon transplantations for paralysis of muscles going to the foot have not been valuable, as they do not stand the test of time. It is almost impossible to balance the body weight upon the astragalus when either the anterior, posterior or lateral group of muscles are paralyzed. One therefore advocates the removal of this bone in order to get a firm weight bearing foundation. Tendon transference thus supplimented produces a much improved foot when varus or valgus deformity is present. The operation of removing the astragalus, displacing the foot backward and utilizing the peroneals as a stay by suturing them to the tendo-Achillis, advocated by Dr. Royal Whitman, gives the best obtainable foot when its deformity is one of calcaneous, calcaneo-valgus, or dangle-foot. When successful this gives a firm base for standing and walking. The circulation to the foot is improved and the ability to use it without a brace stimulates the growth of the entire limb.

When the quadriceps extensor tendon is paralyzed and both hamstrings are strong and active, the implantation of the stronger of these, often restores active extension of the leg and prevents recurvatum. The success of this operation permits the patient to set aside his braces.

The lasting effect of any operative procedure depends upon assiduous and vigilant after care. The corrected attitude should be maintained for months and the patient seen at frequent intervals. Warning should be given that too much strain or liberty to the operated member may prevent obtaining an ideal result.

CONCLUSIONS.

Every effort should be exerted to prevent the disease by strict quarantine.

Many hard hit cases can be saved from multiple paralyses by prolonged rest, competent medical treatment and careful nursing.

Vicious deformities may be avoided by early and thorough orthopedic care.

Operations give most salutary results when the cases are carefully selected and the proper one performed.

Discussion.

Dr. Brainerd H. Whitbeck, New York: I would just like to bring out a little more strongly than Dr. Wallace made it, the treatment in the acute stage. These cases of infantile paralysis as a rule come into the hands of the physician who usually calls in the neurologist, and they ordinarily come to the orthopedic surgeon when everything else has been done. The moment paralysis is recognized the advice is to massage and apply electricity, and they argue that it is important to keep up the tone of the muscles of the paralyzed limb until the spinal cord has had a chance to recover.

Now, nobody would take a case of typhoid fever or the grippe and take them out of bed and spank them and make them get up and walk up and down the room. In infantile paralysis there is an acute inflammation of the spinal cord, and there is an acute, infectious disease. The nerve supply to the muscles which are massaged and to which electricity is applied comes from these cells in the anterior horns. Now, is it not more reasonable to give the spinal cord the chance to recover from this acute inflammation, the cells to quiet down by keeping these muscles at rest than to stimulate them? In our opinion a great many cases of permanent, extensive paralysis could have been prevented to a greater degree by complete rest, by absolutely deferring massage and electricity until the acute stage has subsided and by the early application of plaster or braces to prevent deformities.

The paralysis is not due entirely in all cases to the extensive disease from the start, but often to meddlesome surgery, meddlesome electricity, massage, etc., and Dr. Flexner confirmed this opinion in a paper which he read at Yonkers about three years ago. In the discussion of his paper, neurologists spoke of the importance of early application of massage and electricity, and he condemned it absolutely on the same grounds which I have presented, and he is still of that opinion.

As far as the failures in the operations which Dr. Wallace has presented here are concerned, they cover, of course, a very large number of operations by a number of men, but they show conclusively that as our technique improves, our failures will be less, and we must all learn from operations which are presented by skilled men in their papers and in our observations of these skilled men that we must try to stick as colsely to the principles and the technique laid down in these operations as we possibly can.

For instance, the failure of astragalectomy, which has been done so extensively, is due to not displacing the foot properly backward and to improper immobilization and improper after treatment. If Dr. Whitman's operation were done as he advocates it absolutely, the number of failures would be very easily reduced.

Dr. Charlton Wallace, New York City: Dr. Whitbeck was quite right in emphasizing the importance of the prolonged rest. One might add that I am also, although I didn't incorporate it in the paper, a fresh air fiend for these paralytic cases during their acute stages. If it is permissible, I will recite one case of a young lady that was paralyzed, facial paralysis, mouth all drawn down to the side, and she could not lift her head from the pillow.

She had her onset in the early part of October, and I saw her on Columbus Day. She was absolutely paralyzed from her head down. She was put to bed in a room with the windows kept open night and day. Her nurse was compelled to wear a cloak or a sweater, and the patient was put to bed on a wood flooring with just a mattress on it, superimposed upon the bed frame.

Now, what was my result? She wanted to know how soon she might be able to lift her head up. I told her she might lift her head up when she was able to pucker her lips enough to whistle. She was a healthy, robust, athletic young lady, was perhaps one of the best all-around athletes in her neighborhood. One day I went to see her and she grasped her lips with her fingers and whistled.

She had her onset about three years ago. Today she is walking without any brace. No operation has been done upon her and she is able to dance. She has paralysis of a few muscles. Her treatment has been such that she is able to get around almost as well as I am. If she had been given the developmental exercises, the strong muscles in her back, the active muscles would have approximated the ends of her spinal column just as a bow-string approximates the ends of a bow when it is tight and she would have one of the worst deformed spines one would want to see. Therefore, I want to impress upon you the urgency of fresh air and absolute prolonged rest for these hard-hit cases.

The only muscle transplantation that one would recommend naturally would be the one that we have seen turn out successfully, and the only transplantation that I have seen stand the test of years is the transplantation of the hamstrings.

Arthodesis has not been successfully practiced. Histologically, how can one get ankylosis with the cartilage lining in the joints of these young children? Dr. Gwilym Davis, of Philadelphia, says that our mistakes have been that we have cleaned out the cartilagenous chips and have not left them so that they would form a plastic growth in the joint, and thereby, he says, he has gotten very good ankylosed feet.

The main object of an astragalectomy is to give a patient such a functioning foot, that he no longer has to depend upon any apparatus or any brace in order to substantially bear his weight on that foot, when he is using it for the ordinary purposes of running or walking.

EPIDEMIC POLIOMYELITIS.*

By FRANCIS E. FRONCZAK, A.M., M.D.,
Health Commissioner of Buffalo,
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THE writer has no new thoughts to offer in regard to poliomyelitis nor original investigations to report. My knowledge of the malady has been derived from the epidemic occurring in Buffalo a few years ago and from the data of the Rockefeller Institute and Public Health Service reports, to which those interested may refer with satisfaction.

The pitiful character of the disease, its peculiar characteristics, contagious nature and relation to public health appeal to me as justifying the emphasizing of some of the important factors so far known—for there is much not definitely understood—in which the health officer is interested.

In 1912 Buffalo was visited by a serious epidemic. With the co-operation of experts from the Rockefeller Institute, United States Public Health Service and several Buffalo physicians an exhaustive examination was made.

The total number of cases reported as polio, or suspected polio, was 335, of which thirty-eight were eliminated, leaving 297 cases. Sixteen of these were abortive, terminating without paralysis, and 281 terminated with paralysis. The number would have been larger if knowledge were had of those unrecognized through the difficulty of diagnosis.

The record in Buffalo shows the existence of sporadic cases during the past twenty years—a first epidemic in the summer and fall of 1910 with some sixty cases, with but nine cases the next year (1911), but in the following year (1912) we had the largest number known, constituting the epidemic referred to.

Without detailing to you the figures, the data shows this epidemic was of gradual development—not explosive; that the number of cases gradually increased from the first part of June to August; then gradually a steady decline, with a slight exacerbation in September.

In relation to weather this particular summer was notably a cool one, and during the greatest prevalence of the malady the rainfall was unusually heavy and distributed throughout the period, which suggests that heat, dryness and the prevalence of dust were not causative factors.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

The distribution of cases in the city was carefully studied by wards and density of population. The incidence of cases in relation to population varied widely in different wards, and varied widely in relation to density. Of the *five most* densely populated wards, only one showed a proportion of cases above the average, while two of the *least* populous wards showed a slight excess above the average.

When the ten wards were grouped into *two groups*—one of five with the largest population and one of five with the smallest population—it was found that where the proportion of cases were the lowest, the average density was twice as great.

Another interesting factor brought out was that there was no uniformity in the period of greatest prevalence in the different sections of the city, and in some sections the disease had expended its fury before other sections had even become infected.

In relation to nationality some interesting facts were shown. In Buffalo the Italian, Polish and Jewish population live in colonies by themselves, are not distributed and live comparatively among themselves, and this is especially the case with Italians who are the most recent settlers. The Italian section is one of the most congested, and, in most respects, the most unclean section of the city, the Polish and Jewish, in contrast, live, on the whole, under better conditions, though not as well as those completely Americanized and native born. Other nationalities are not so segregated and diffuse more throughout the community.

In relation to this, investigation shows that the epidemic developed *first among the Italians*, and that among foreigners this nationality had the greatest number of cases.

The relationship to *immediate environment*, living space, light, ventilation, sewage care, presence of vermin, cleanliness, etc., were very carefully considered, as contagious disease is more readily communicable, contact more direct where overcrowding, carelessness, uncleanliness and, incidentally, the accompanying vermin exist.

Of the total number of cases the conditions were good in 33.6 *per cent,* fair in 25.9 *per cent,* poor in 35.1 *per cent,* and excellent in but 5.4 *per cent.* While, therefore, there was an excess of prevalence among those living under poor sanitation, the distribution among those living otherwise was fairly uniform, and the conclusions made were that the conditions associated with poor sanitation were *not a predominant or dominating factor.*

As the presence of *paralytic diseases of certain domestic* animals, dogs, cats and especially fowls, has been noticed during poliomyelitis, the possible association or dependence suggested itself. In relation to this, the investigation showed the presence of animals of some kind in 130 instances, mostly cats, dogs and chickens, though practically in all cases there were animals in the next or nearby premises. There was opportunity, therefore, for cases to be in association with animals, but of the whole number only a half dozen instances were recorded where such animals were sick, and in these their illnesses were so indefinite and the association so remote that any relationship was beyond question.

Attention was, of course, directed to the *bearing of milk, water and raw food,* the common cause of some of the other infections. The milk was given the first attention on account of it being the chief diet of those affected; namely, children. Of 225 cases investigated, 209 obtained a supply from licensed dairies, eleven from grocers who were supplied by licensed dairies, and five had private sources of supply. Only twelve cases were breast fed, and but twenty-four cases used boiled or condensed milk. The 209 cases were supplied by 120 city dairies, *eighty-five* of them had but *one patient on their route,* nineteen but *two patients,* and so on. The dairies having the largest number of cases were those with the largest routes. Those dairies having over two cases charged to them showed there was no significance when comparison was made to the number of customers served. In view of these facts, and that the epidemic was not explosive, *milk, as a factor, was eliminated.*

Other foodstuffs, *fruits and vegetables* were considered, but it was considered highly improbable that any *single source* could infect so widely, or that a *large number of infected sources* could exist at one time.

Contact with those infected or contact infection, so important, was very carefully looked into. Two points, of course, were considered. First, those having a history of direct contact with previous cases; second, those known to have indirect contact. Of 273 paralytic cases but forty-nine, or 18 per cent, presented any history whatever of contact, even slight, directly or indirectly, with any previous case which could reasonably be taken as polio. Only fourteen instances of direct and twelve instances of indirect contact with previous definite cases were found to be sufficiently authentic to have definite significance. In most all the cases the family had no knowledge of exposure to any previous case. Of occurrence of those *known to be in contact* with acute cases, out of 273 cases investigated three occurred in institutions: One was a nurse in a general hospital, one a child ward patient in another hospital, one a pupil in a large boys' school. Though these cases were in contact with very many people during the onset of their sickness, no other cases developed at the institutions they were in.

In relation to 267 families, it was found that from the small number that developed the disease, polio is not a *highly* contagious disease, the infection not even being easily transmitted, or that the individual resistance was high. It was in evidence that a number of persons outside the family, who were sick, were exposed by visiting before isolation had been ordered; that many cases had been taken about in street cars and public gatherings during the acute stage, and that notwithstanding conscientious effort to secure isolation, there was considerable opportunity for dissemination.

Again, of the 263 *houses* in which there were cases, 142, *or over half, were two-family houses;* in a few instances there were twenty families. In these houses there were 350 families in addition to those where there was sickness. Now, among these 350 families but four cases of polio occurred subsequently. The other 346 *developed none, showing* how unusual was transmission to those in the immediate vicinity.

The relationship of *school attendance,* always a possible active factor in disseminating infection, was carefully investigated. The records in regard to this show that out of 286 paralytic and abortive cases, 202 occurred before the reopening of the schools on September 3d, and eighty-four subsequently. Of the 202 cases occurring before school opening, twenty-eight, or 13.9 per cent, were children having previous attendance; and, of the eighty-four occurring after school opening, twenty-five, or 29.7 per cent, were in children attending school. Of the 202 occurring before school opening, 197 occurred in families where there was 110 or 55.7 per cent entered in the schools. Of the eighty-four cases occurring subsequent to school opening in eighty-three families, fifty-nine, or 71 per cent, had other members in school attendance. The increase after September 3d among the school children and among families having members at school suggests that the schools played an appreciable part in spreading infection. Tables too detailed to give here showed that not only after the schools opened there was no significance grouping among any particular schools, but that the distribution was, if anything, more uniform than where the cases occurring when the schools were closed.

The deductions, therefore, are that whatever part the schools played, it was more *from unrecognized cases* than recognized ones, showing particularly the importance, though difficult, of control.

Insect transmission was difficult to determine. The occurrence of many cases among those living under good sanitary conditions practically excludes such insects as lice and bedbugs, while among others their presence is naturally denied, so that their association with polio is chiefly by inference. If they played any important part, the slums would be characterized by the malady, which was not the case.

The fly, of course, comes under the greatest suspicion. The common house fly is not so restricted in distribution, though more common in bad surroundings and very likely every case was accessible to them. Notwithstanding this, if they played the part there would have been more grouping in the locality.

The most suspicious fly is the *common stable fly*. The Massachusetts State Board of Health note that this was the only biting insect constantly found in the vicinity of polio cases in that state, and it has been shown that the disease can be transmitted from monkey to monkey through their bite. Observations in Buffalo were made in October, and, during this period, out of over 100 cases investigated all over the city, the biting stable fly was *always found,* though rarely in the house, not even on cold or rainy days. Their activity in number decreased decidedly during the month, and by November they were few. Their decline, therefore, was coincident with the decrease of the epidemic.

In Buffalo in no instance was there a history of a patient being bitten by one of these flies, though it was possible that every one may have been. On the other hand, among those most exposed to them, hostlers, teamsters, stock men, there was not an instance, while there was numerous instances of but a single case of polio where there were many children and abundance of flies. It is therefore impossible to draw a definite conclusion in regard to this at the present time.

In summarizing the conclusion in regard to this epidemic, it does not appear that anything new or unusual was in evidence, but that it was practically similar to that occurring elsewhere.

Infection had been undoubtedly present for years, the epidemic developed among the Italians without appreciable reason, spread all over the city, attacking about one in every 1,400, and almost exclusively children, and the determining factors could not be ascribed to unusual local causes nor could they be specified. It was independent of weather conditions and largely of social conditions, of animal and insect influence, and as regards the important feature of contact transmission, it would appear that the clinically recognized cases were not so great a factor in dissemination as the mild unrecognized one, the abortive and virus carriers. This is a most important feature and indicates the line of preventive action, as these cases can disseminate the malady in an acute form the same as the typical one.

It is also apparent that whatever route of infection is considered there must be other sources than those now known.

Symptomatology.—Early diagnosis of the malady is of the utmost importance though difficult. The difficulty lays in the absence of pathognomonic symptoms, the apparently trivial and misleading character of the onset, and the mistaking it for some of the simpler ailments of children or confounding it with cerebro-spinal meningitis. This is explained very largely by the many different symptoms that attend where a pathological process may extend through and localize itself in any part of the brain, medulla and spinal cord.

The importance of early recognition from a prophylactic and public health point of view is apparent and as well to the individual, for treatment to be successful lays in coping with the malady before it has expended its fury and violence on the nerve cells.

To facilitate diagnosis and study, several classifications and types have been suggested, although more or less wanting through the difficulty of basing any classification upon purely an anatomical or clinical basis.

The authors of the Rockefeller Institute monograph approach the matter from a clinical standpoint and divide the cases into three groups, which, for practical purposes, is probably the most acceptable.

> *The cerebral,* where the *upper* motor neurone is implicated and spastic paralysis occurs.
>
> *The bulbo spinal,* where the *lower* motor neurone is involved and flaccid palsy occurs.
>
> *The abortive type,* where the case terminates *without paralysis.*

Early diagnosis must be made from the following:

The prodromes are mild and fleeting, readily overlooked and may be absent. Their onset is gradual, general, though few may be of value.

Fever is the most common symptom, the onset insidious, may reach 103 to 105, though generally lower with morning remission, and may continue until paralysis occurs.

Drowsiness is very noticeable; there may be simply apathy, which may last a day or so, or it may become stuporous, while again irritability may supplant this condition. A closely allied hyperæsthesia has been observed in the majority of cases.

Pain.—On passive motion especially elicited on flexing the spine forward, the neck or limbs at the hip. *Spontaneous pain* back of the neck and head and back and limbs may be complained of, and it has been specially noticed in those subsequently paralyzed. Rigidity of neck muscles. Pain may also be elicited on pressure, particularly on the nerves as in neuritis. *Weakness in the limbs is often a forerunner of paralysis. Knee reflexes* may be exaggerated at first and later lost. *Early convulsions* are rare, and indicates cerebral involvement. *Gastric symptoms* have been rather common, vomiting or nausea, and observed early. Diarrhœa has been reported, but is rather negative in value.

The picture, therefore, contains little of diagnostic value. Of *greater value* have been the results obtained by subjecting some of the *spinal fluid* for *examination.* Study of this feature shows an increase of interspinal pressure, an increase in polynuclear and mononuclear cells and of globin. These are not specific but they are suggestive of meningeal involvement and differentiated by absence of bacteria from other types of meningitis. The association of the spinal fluid examination with the association of symptoms should be strongly diagnostic, and therefore made in the prodromal stage.

Recovery in these acute cases is about the same in all. The acute symptoms abate, the child becomes observant, the awakening ushering convalescence, which is steady; occasionally there is a period of irritability or emotional disturbance which is transient.

The significant prominent phenomenon is the paralysis which, depending on the degree of cell destruction, may be permanent, transient or simply a weakness. A peculiarity of the paralysis is the unsystematic distribution—one or both legs, or one leg and arm may be involved, or the impairment may be limited to a group of muscles.

Involvement of the lumbar enlargement is most common, next to that the cervical; a pathological fact explained in that these sections contain the largest vessel. The lesions being localized in the cord, itself, and not in the nerves, explains the variations of the involvement and paralysis.

Finally, while the paralysis is the greatest feature of the disease, the fact should not be lost sight of that it is a sequel representing the damage done by a general infection, markedly contagious in the early stage, all of which indicates the line of control and hope for successful treatment.

The virus is a filterable one, highly resisting to drying and many chemical agencies which explains the dissemination by inanimate articles —dust, etc.—as well as those intended upon the sick.

Our present knowledge shows that virus enters and leaves those affected by the nasopharyngeal and other respiratory passages that it is contained in the mucous secretion and which, upon being swallowed, infects the membranes of the stomach and the intestines.

The mucous membranes, therefore, are the portals of entry for the virus to the nervous system where its violence is displayed and are as well the means of dissemination.

In relation to the treatment, it is to be recorded that the intraspinal injection of one to two cc. of a 1 to 1/1000 solution of adrenaline was in a certain number of cases adopted for the first time, with the result of checking the symptoms and further progress of the malady. Experience in its use, while too limited to form definite conclusions, justified an extended trial hereinafter.

Finally, a report of the Buffalo epidemic, with data and charts, may be had on application.

EXPERIENCE IN AN EPIDEMIC OF POLIOMYELITIS.*

By **JOSEPH ROBY, M.D.,**
ROCHESTER, N. Y.

SOME years ago the writer had the conception of poliomyelitis as a disease in which the patients went to bed perfectly well, and when they awoke in the morning they found that they were unable to stand, but complained of no pain. A small epidemic of the disease last fall in Rochester, disabused my mind of this idea, except in a small number of cases. What I expect to say consists of a few random observations made in this epidemic.

One's apparent good health had very little to do with the susceptibility to the disease. Almost always it seemed to be the well-nourished, healthy children that were affected. It seems to be a question of individual susceptibility or immunity, and not the so-called good health. The epidemic in Rochester began, as so many of them do, in July and stopped with the advent of cold weather in October. In America this seems to have been the rule, and it is certainly difficult to explain if the disease is carried by contact. In the prodromal period, a great many of the cases were extremely sick, and often the meningeal symptoms were marked. This would correspond to the pathology of the disease as given by Flexner, viz., that it begins with a meningitis. Many of the cases had a great deal of pain, did not like to be handled, and, as has been observed before, the children would all begin to cry the minute one pulled down the bedclothes. I had always thought that the disease was practically at its height when the paralysis was first observed, and that it would not get any worse; but in four or five cases this was not so. I do not mean that the disease constantly advanced, but that for quite an appreciable time there was a certain amount of paralysis, and then there seemed to be an exaccerbation of the constitutional symptoms, and we suddenly found that the paralysis was much more extensive. This became of interest in urging the parents to send their children to the hospital. With scarlet fever, for example, the parents are unwilling, often, to send their children to the hospital because of the uncertainty of the course of the disease; but with poliomyelitis, I assumed, at first, that I could say to them—"Your child is at its worst now. It won't get any more paralysis, and it will gradually improve." One death showed the fallacy of this statement.

The writer offers a rather fanciful explanation of the more frequent involvement of the lower extremities. This is, that it is a matter of gravity; that the virus gets into the cerebrospinal fluid, and that it then depends upon the position of the patient at the time of its entrance, whether the upper or lower part of the cerebrospinal system is mainly involved. The patient, being for the greater part of twenty-four hours in the erect posture, the virus gravitates to the lower part of the subarachnoid space, and, consequently, the legs are more often affected.

In an adult, it is easy to tell a paralyzed muscle, but not so with a child. I think the most useful instrument is a pin. The limb should be put in such positions that the child will have to use the different muscles to get away from the pin. Again, a child with an acute rheumatism, suspected of being paralyzed, because it would not move its legs at the knee joint, would when the leg was flexed at the hip, hold the entire leg straight out, indicating a normal quadriceps instead of an apparently paralyzed one. Given a child with an acute infection and its symptoms, followed in a few days by inability to move a certain muscle or group of muscles, especially in the face of an epidemic at the right time of year, the diagnosis is easy.

The cell count of the cerebro-spinal fluid, has always seemed to me one of the most accurate laboratory aids that we have. In another section (Pediatric Section, "Cell Count in Tuberculous Meningitis"), I have gone into detail, but at the risk of repeating, I am going to go over the technique again. With any kind of asepsis at all, this is a perfectly safe thing to do. This child should be at the edge of the bed with its back well bowed and trued up so that the back is exactly at right angles with the floor. I believe it is much easier to hit the subarachnoid space by going absolutely in the middle line. A small drop of 1 per cent cocaine should be injected just under the skin, the needle should be withdrawn and a few drops more of cocaine injected along the expected course of the spinal needle straight in. Then a spinal needle with an obturator should be used and the needle inserted absolutely in the middle line and at right angles to the body in both directions and parallel with the floor. In a vast majority of cases the fluid will be clear if no blood has been drawn. Staining fluid should be sucked up to the one mark in a white blood counter, and then the fluid should be drawn up to the eleven mark. It may then be put aside and counted later. The counting is best done with one of the blood counting chambers with extra ruling, so that there are eight other squares the size of the space covered by the 400 small squares. The total count in these nine large squares is then multiplied by 11/9 to account for the dilution and the fact that only 9/10 of a cubic milimeter is counted. At the Rockefeller Institute, the average count was found to be 125 during the first week of the disease. This count might be the same in tuberculous meningitis and syphilis, but these other two conditions can, in a majority of cases, be easily ruled out by the onset of the disease, by the clinical symptoms, by finding tubercle bacilli, and, perhaps, by the Wassermann test. I have gone into this technique of lumbar puncture and cell count in more or less detail for two or three reasons—first, it is a perfectly safe thing to do; second, with some practice it is an easy thing to do, in most cases; third, information given is quite exact, and, therefore, a great aid to diagnosis; and fourth, because the diagnosis could, in all probability be made before the onset of the paralysis, especially, in the face of an epidemic and when one is on the outlook for it. To make a diagnosis at this time would be the only way to prevent a distressing paralysis; for it is highly probable that if any treatment is developed for the disease, either in the way of a serum or by chemotherapy, it would be necessary to use the remedy intraspinally, and that before the paralysis began.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

The mistakes of diagnosis were two cases of articular rheumatism, and one case of a very peculiar saculation of pus in the cauda equina. The writer was asked to see this case, and finding a complete flaccid paralysis of both legs, from the waist down, in an infant, did not himself think to test out the sensation until after a spinal puncture showed a thick pus, so thick, in fact, that it would scarcely run through the needle. A subsequent laminectomy revealed a localized purulent meningitis of the lowest three inches of the spinal membrane. A case of neuritis and a case of acute cerebral syphilis were mistaken for poliomyelitis. A case of poliomyelitis with marked meningeal symptoms and high fever was, for a time, mistaken for epidemic cerebro-spinal meningitis. Of course, the epidemic created considerable disturbance in the city, and this may explain the correctness of the diagnoses, but it ought to be a source of considerable gratification to the medical profession of Rochester that they made so many early diagnoses, and, apparently, missed very few cases.

There were two cases of facial paralysis alone, in two infants under one year old, living within half a block of each other. In two cases of facial paralysis alone in two older girls, about sixteen years of age. One of these girls' cerebrospinal fluid counted twelve cells ten days after the onset of paralysis. There were no constitutional symptoms other than a slight headache.

Although there were other children in almost all of the houses where there were cases, yet in only two instances was there more than one case. In a neighboring town there was one frank case and another child sick at the same time with constitutional symptoms, but no paralysis. This was the only diagnosis made of an abortive case. All of the seventy-two cases had at some time a frank paralysis. The mortality of 4 per cent is apparently unusually low.

As a prophylactic measure an idea that the disease is spread by healthy persons coming in contact with the sick, all of the cases were urged to go to the hospital, and where urging was not efficacious, we invoked the aid of the infectious disease law and had them committed by the Police Court Judge.

On the supposition that normal adults' blood might contain immune bodies, two cases were treated by the intramuscular injection of citrated whole blood. In one case the temperature, which had been around 102, came down to normal a few hours after the injection; but it was about the right time for this to occur anyway. In the second case, the temperature dropped about thirty-six hours after the injection. Both cases showed paralysis when the blood was injected, so that no conclusion can be drawn as to whether the injection did any good or not. A little blood from a convalescent patient was tried, but here again no definite conclusion could be drawn. However, if one could at all safely reason from analogy from the use of convalescent blood in scarlet fever, measles, erysipelas, etc., it would seem rational to use it, provided it could be obtained in sufficient quantity. It is here that the spinal puncture might be of great assistance in making a diagnosis before the onset of actual paralysis, and, perhaps, serum from convalescent cases could be injected into the cord.

PRACTICAL ASPECTS OF THE OVARIAN SECRETIONS.*

By WILLIAM P. GRAVES, M.D.,
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THE most interesting and profitable field of work in present day gynecology is the study of the physiology of the pelvic organs, especially exemplified in that of the ovary. Since the recognition of the ovary as an organ of internal secretion some light has been shed on a subject long shrouded in mystery, with the result that much of the old useless and often harmful handling of gynecological cases has given way to more dignified and scientific methods of treatment.

It is the purpose of this paper to point out certain matters of clinical importance in gynecological practice which our new though still inadequate knowledge of pelvic physiology has served to emphasize.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

Genital Atrophy.—It is well established that the ovary presides (to a certain extent at least) over the development of the genitalia. Thus removal of the ovaries before puberty inhibits proper sexual development and results in infantilism. Castration of the matured individual is inevitably followed by atrophy of the other genitalia; while a like result is produced at the menopause when the ovaries have ceased to functionate.

That the ovaries exert this influence by means of an internal secretion is sufficiently proved by numerous animal experiments. Genital hypoplasia may be prevented in young castrated animals by transplantation of ovarian tissue in distant parts of the animal's body, while rut may be produced in virgin animals and even in those that have been castrated by the injection of ovarian extract. In just what part of the ovary the substance is manufactured which has this special duty to perform is not conclusively known, but it is probable that it is secreted by the unmatured follicles, inasmuch as its influence is exerted before the age of puberty when the development of complete ovulation and corpus luteum formation first takes place.

Moreover, there is some doubt as to just how the ovarian secretion exerts its influence in this respect; whether it is by a direct action on the tissues of the genitalia, or whether it is by its balancing effect on other more powerful glands of internal secretion which of themselves may directly produce changes in the genital organs.

Viewed from a clinical standpoint the subject is of chief interest to the gynecologist in relation to those conditions which result first from deficient genital development, namely, hypoplasia and infantilism, and secondly, from artificial or natural cessation of the ovarian function, namely, atrophy.

The first of these subjects, that of infantilism, I shall not attempt to discuss in this paper, and will only remark in passing that the results of infantilism as manifested chiefly by dysmenorrhea and sterility constitute perhaps the most unsatisfactory field of gynecological practice.

Of genital atrophy it should be said that a proper realization of its effects is of great importance in plastic surgery of the vagina. Atrophy of the external genitalia is manifested by a shrinking of all the parts. The labia majora diminish is size, while the minora become slender and insignificant and may completely disappear. The introitus narrows down and tends to become valve-like. The modified membrane of the vagina and vestibule is thin, pale and mottled and the tissues become tough and unyielding.

The vagina contracts and often forms obstructing bands and adhesions. The cervix shrinks in size and the lumen tends to close.

Pathological conditions from atrophy are in the majority of cases due to the contraction of old scars such as may result from childbirth or from former plastic operations.

The atrophy that follows the natural menopause or ablation of the pelvic organs has a very marked effect on these cicatrices in that it causes them to shrink into dense unyielding bands that may produce consequences of a serious nature. Thus scars of the perineum, which during menstrual life give no trouble, may after the cessation of the ovarian function contract into tense painful structures that make coition difficult or even impossible. The continued discomfort of such a perineum is productive of the most severe and intractable neuroses, while the valve-like effect on the introitus prevents proper drainage of the vaginal and uterine secretions, which become chemically altered and irritating to the external parts. Many cases of pruritus and of kraurosis of the vulva have their origin in a perineum of this kind, and can often be cured by an operation which secures a proper outlet and drainage at the vaginal orifice. Scars and adhesions of the vagina cause vaginismus, prevent drainage, and may result in partial or complete atresia. Cicatrices of the cervix often result eventually in atresia with periodic or permanent blocking up of the uterine secretions, the condition becoming one of hydrometra, pyometra or hæmatometra. There is usually an associated bleeding and leucorrhœa from desquamating areas of the cervical epithelium, so that the similarity to uterine cancer is very striking.

With senile atrophy of the vagina there ensues also a change from an acid to an alkaline reaction in the secretions so that the vagina loses its natural immunity to infection. Hence vaginitis with profuse discharge, bleeding from desquamating surfaces, and plastic adhesions is common, especially if obstructing cicatrices are present.

From conditions like the preceding the surgeon can learn some valuable lessons. In repairing the relaxed perineum the greatest care must be exercised to secure an even funnel-shaped outlet, firmness to the perineal body being gained by deep approximation of the perineal muscles and not by tight drawing of the superficial skin and subcutis. Most important of all is the avoidance of sepsis, and healing by granulation, which depends almost entirely on the ingenuity of the surgeon in securing exact approximation of the wound edges without undue tension.

In operating on the cervix it should be remembered that first intention wounds heal with an almost inappreciable scar, whereas sepsis or healing by granulation from clumsy coaptation results in an extraordinary amount of permanent scar tissue.

It is a practical point to bear in mind that most lacerated cervices require denudation and repair only on one side of the cervix and if this rule were systematically observed many of the unpleasant later results would be avoided.

A consideration of the effect of atrophy on the external genitals is of special practical importance when it is necessary to perform a plastic operation in conjunction with hysterectomy. Genital atrophy follows very quickly the removal of the uterus and ovaries, it being proportionately more rapid the nearer the patient is to the natural menopause. It is probably somewhat delayed by leaving in ovarian tissue but nevertheless inevitable. In these cases the effect of an unskillful or overzealous repair of the perineum is far more striking and disastrous to the surgeon's reputation than when the natural menopause causes the vaginal shrinkage, possibly years after the original operation.

Possibly some of my hearers are familiar with the chagrin of the patient, the irate husband and the threatened lawsuit, which this unfortunate combination of events is apt to entail.

In most cases a plastic operation for enlarging the introitus, with subcutaneous dissection of scar tissue bands relieves the trouble. Sometimes the operation must be supplemented by the use of graduated vaginal dilators.

During the lactation period there takes place definite atrophy of the genital system. Whether this is due to a suppression of the ovarian secretion brought about by the lactation function is not conclusively known, though it seems probable. On the other hand it is common to observe atrophy of the external genitals several months after labor even when the mother has not nursed her baby. Physiological lactation atrophy as it is called is usually temporary, the tissues of the genital system returning to their normal consistency after the resumption of the menstrual function. Occasionally after over-lactation the atrophy remains permanent with amenorrhea, sterility and symptoms of premature menopause. To the surgeon the period of lactation atrophy is of moment in deciding the question of the time of operation on complete lacerations of the perineum, and rectal and vesical fistulas.

If the first attempt at repair which is usually made by the attending obstetrician immediately after delivery is not successful, it is inadvisable to make a second attempt during the period of lactation atrophy for it will be found that the tissues of the external genitals at that time are stiff, unyielding and unplastic in quality. Coaptation without undue tension is very difficult to secure and failure is exceedingly apt to occur. Unless the indication for operation is very urgent it should not be undertaken until two or three months after lactation has ceased, and if there has been no nursing not until five or six months at least after delivery.

Circulatory Disturbances of the External Genitals.—The influence which the ovarian secretion has on the circulation of the external genitals is sufficiently evident from the very apparent anæmia which the parts rapidly undergo after the ablation of the ovaries. We have already mentioned that the injection of ovarian extract produces rut in virgins and even in castrated animals. Animal experimentation has repeatedly demonstrated that ovarian extract produces hyperæmia of the external genitals. Acting on these experiments as a basis Schickele administered ovarian extract to a patient suffering from kraurosis vulvæ and cured the disease both symptomatically and anatomically. The reader has reported a similar case in a patient who at the end of about eight months' treatment was entirely relieved of her symptoms, while the local condition of the vulva was immensely improved.

We have had two other cases of kraurosis at the Free Hospital for Women in which the administration of ovarian extract has greatly relieved the symptoms of this distressing disease.

The success of ovarian extract in treating kraurosis led me to employ it in a case of chronic furunculosis of the vulva on the principle that by artificially improving the circulation of the external genitals, resistance to skin infections would be increased. Chronic furunculosis of the vulva is a rare disease and I have had only this one opportunity to test the treatment.

The following is a report of the case:

A married woman of forty-three had for seven years been troubled with intermittent attacks of boils involving chiefly the labia majora. These lesions were usually multiple and varied in size from small pimples to large furuncles. The patient had consulted numerous physicians including dermatologists and neurologists but without relief. The disease was becoming increasingly distressing and was affecting greatly the patient's general health and activity.

The administration of ovarian extract brought immediate relief. I soon lost sight of the patient until two years later when she stated that whenever she felt a suggestion of the old irritation she was able absolutely to prevent its progress to pimples and boils by taking the ovarian capsules for several days.

Acting on the principle of the hyperæmic influence of ovarian extract on the external genitals I have repeatedly tried its effects on patients suffering from the discomforts of atrophy in cicatricized perineums but in most cases the results have been disappointing. This, however, is not surprising for the discomforts are chiefly due to mechanical tension. Experience has shown that they can best be relieved by plastic surgery, supplemented by the administration of ovarian extract.

Ablation Symptoms.—In our daily practical experience one of the most striking proofs of the existence of an internal secretion manufactured by the ovaries is the appearance of certain well defined vasomotor disturbances following the natural or artificial cessation of the ovarian function. These disturbances are manifested most typically by hot flushes. Closely associated with these are sweatings, sensations of alternating heat and cold, dizziness, vague muscular pains, headaches, etc. In severe cases are sometimes seen various psychoneuroses even amounting to mental aberrations. It is customary to divide the ablation symptoms into those that are vasomotor in character and those that are psychoneurotic. In our present discussion we are interested in the first variety for the psychoneurotic are far from being constant and are readily accounted for on other grounds than from a loss of the ovarian secretion.

The cause of the vasomotor disturbances is not definitely known, numerous theories for their appearance having been advanced. Schickele believes that the ablation of the ovaries removes a vaso-depressor influence exerted by the ovarian internal secretion and that the symptoms are due to a rise in the blood tension which lasts until the other organs of internal secretion regain their balance.

In order to test this theory we have made a series of about fifty experiments, taking the blood pressure immediately before and after hysterectomy operations and during the time when a patient is passing through the sensations of a so-called hot flush and have not been able to discover any definite changes in the blood pressure.

It is not unlikely that the ablation symptoms are due to the influence of some other organ of internal secretion, which has been rendered abnormally active by the loss of the balancing power of the ovarian substance or even by dysfunction of an ovary left behind. It is conceivable for example, that the thyroid which is thought to bear a certain relation of antagonism to the ovaries is rendered over-active by their removal and that the ablation symptoms are manifestations of hyperthyroidism.

It has been a matter of observation in our own series of cases that the vasomotor disturbances are apt to be more severe and more prolonged in women of a neurotic predisposition, while they are intensified by complications that interrupt smooth convalescence from the operation. In one of our cases the symptoms did not appear until several months after the operation after an attack of pleuropneumonia from which time they continued with severity for a year or more. In another case troublesome hot flushes came on nearly a year after the operation on the appearance of a postoperative hernia in the wound and disappeared after repair of the hernia.

As in most theories regarding the action of organs of internal secretion there are certain confusing contradictions. Thus hot flushes are by no means uncommon in women who possess apparently normally functionating ovaries in which case we must assume an ovarian *dysfunction*.

In one of our cases a woman of forty-four who had suffered severely from hot flushes for several years was immediately and entirely cured of them by hysterectomy and castration, performed for uterine insufficiency.

Notwithstanding the intricacy of the problem of causation, the fact remains that vasomotor disturbances, chiefly in the form of hot flushes, appear in a large percentage of cases following ablation of the ovaries. In a series of about 350 cases from whom we have been able to get reliable data about 80 per cent of the patients reported that they had experienced the hot flushes, the remaining 20 per cent saying that they were entirely free from them. Of the 80 per cent 50-60 per cent said they had had the sensations but were not troubled by them, either on account of their mildness, or their infrequency or of the short duration of their appearance. The remaining 20-30 per cent found them more or less seriously troublesome either on account of their severity or their frequency or their long duration.

That the ablation symptoms are in some way directly or indirectly due to the loss of an internal secretion is strikingly proved by the influence on them produced by the administration of ovarian substance, and it is in this field that ovarian organotherapy finds its greatest practical usefulness to the pelvic surgeon, who is obliged frequently to perform the operation of hysterectomy and removal of the ovaries. We have had in our work a sufficient experience in this particular field extending over a considerable number of years, to state with confidence that ovarian extract unquestionably acts as a specific in controlling and alleviating ablation symptoms, and that when properly prepared and administered it has proved to be a remedy of inestimable value in the practice of pelvic surgery.

In our hands the extract has served rather to alleviate the symptoms and to shorten their duration, although in a few cases it has apparently caused their absolute disappearance. It evidently, therefore, acts merely as a drug and produces no profound permanent serological change in the blood. Its value consists chiefly in transforming severe symptoms into those that are mild and that give the patient little discomfort.

When the extract of the whole ovary is employed it may be given indefinitely without injury to the patient.

In the discussion of ablation symptoms after hysterectomy one must consider the effect on them of leaving ovarian tissue in the body of the patient, as may be done either by leaving in situ one or both ovaries, or by transplantation of ovarian substance.

When the uterus has been removed a profound reverse effect is produced in the ovaries which, though left in situ, and retaining their normal blood supply, ultimately become atrophied and degenerated. Certain it is that after removal of the uterus alone characteristic vasomotor disturbances appear, similar in severity and almost equal in frequency to those after complete ablation of the ovaries. These have been named by Scheckele "retention symptoms."

In my series of cases of hysterectomy I have left behind a complete ovary in comparatively few cases, so that my figures as to the ablation symptoms after this procedure are of minor value. A study of the statistics of others, however, has convinced me that the leaving of one or both ovaries in situ is followed by only a small percentage of improvement in the symptoms. Cemach, Sarwey and Senn gave it as only 1 per cent better. This small percentage of improvement in the symptoms does not outweigh certain disadvantages that attend the retention of the ovary. Of these may be mentioned the possibility of periodic molimina of menstruation, of vicarious menstruation, of almost certain cystic degeneration of the ovarian tissue and the almost equally certain occurrence of adhesions.

The following cases taken from my records typify the results of leaving ovaries in situ:

Mrs. N. D., age twenty-four. Hysterectomy for acute pelvic inflammation, April 15, 1913. Ovary left in. February 18, 1914, repair of post-operative hernia; removal of ovarian cyst; approximation of recti. Many hot flashes after first operation. October, 1915, reports no hot flashes since last operation.

Mrs. M. D., age thirty-eight. Hysterectomy for fibroid, November 3, 1909. One-half ovary left in situ. Few hot flashes.

Mrs. C., age thirty-five. Hysterectomy for procidentia, April 24, 1913. Ovary left in situ. Letter, June 13, 1915, many hot flashes; more nervous.

Mrs. C. H., age thirty-five. Hysterectomy for fibroid, December 19, 1911. Ovary left in situ. No hot flashes. Much better.

Miss M., age twenty-four. Hysterectomy for pelvic inflammation, June 8, 1911. Ovary left in situ. Letter April 1, 1914, regular cta. every month for two and one-half years; every two months for past six months.

With regard to the influence of transplanted ovarian tissue on the ablation symptoms I have a sufficient number of cases from which to draw significant conclusions. I have transplanted ovarian tissue in sixty-nine cases (fifty-eight hospital cases). In most of these cases transplantation has been done for the purpose of preventing ablation symptoms. In nineteen earlier cases the transplantation was made in the broad ligaments. In these the ablation symptoms were found to be worse than when the ovaries were entirely removed, as regards severity. Vicarious menstruation occurred in one and cystic enlargement with tenderness of the piece of transplanted ovary occurred in three. In the remaining cases the transplantation was made in the abdominal wall. In these cases the ablation symptoms in twenty-three patients from whom we received reliable data, were almost identical with those in completely castrated women, as regards the percentage of frequency, mildness and severity. Tenderness of the transplanted tissue occurred in two cases.

I have made some attempt to determine the effect on atrophy of the external genitals by retention or transplantation of ovarian tissue, but as yet have reached no definite results.

My general conclusions in the matter of retaining ovarian tissue after hysterectomy is that aside from sentimental reasons little if any practical benefit is gained for the patient and that the retained ovarian substance is not only liable to undergo cystic degeneration with a resultant painful tumor, but may suffer a form of dysfunction in its internal secretion with symptoms more serious to the patient than those which arise from total ablation of the organ.

The following case illustrates well the occurrence of "retention" symptoms which are in every way similar to the ablation symptoms:

A young woman of 23, single, consulted me for continuous and troublesome hot flushes, which were especially severe and associated with other nervous and vague discomforts at periods averaging about five or six weeks. She had never menstruated. Examination showed a complete absence of the vagina. No internal genital organs could be felt in the pelvis. The patient was told that she probably had some ovarian tissue which by being unable to functionate properly was probably causing the trouble. An exploratory laparotomy was advised.

On opening the abdomen two entirely normal ovaries were discovered, each one at about the level of the lower pole of the corresponding kidney. In one ovary was a well-formed corpus luteum. Connected with each ovary was a tube and rudimentary strand of solid uterine tissue, forming a complete uterus didelphys with entire absence of the vagina. Ovaries and rudimentary uterus were removed. The operation was followed by an almost complete disappearance of hot flushes and with consequent improvement in general health and nerve control.

Amenorrhea and Oligomenorrhea. Menorrhagia.—The ovaries, probably through the agency of their internal secretion, preside over menstration. Just how the process is carried on is not known, but it is generally accepted that the corpus luteum has special jurisdiction over this function. On the basis of this theory we are accustomed to regard, in the absence of other causes, amenorrhea and oligomenorrhea as manifestations of ovarian hypoactivity and menorrhagia as an indication of hyperactivity of the organ. The theory is substantiated by the fact that ovarian extract acts to a certain extent as a specific in the functional amenorrheas of young women. From personal experience in treating a considerable number of these cases the effect of the first administration of the extract is frequently astonishing. The result, however, is not permanent and long-continued use of the extract is necessary. Too frequently it ceased to be effective after two or three periods. When the treatment can be carried out systematically it is sometimes possible by means of the extract to re-establish permanently the menstrual rhythm.

Functional menorrhagias of young women, representing hyperfunction of the ovarian secretion, may sometimes be controlled by pituitrin, which acts either by its contracting power on the uterine musculature, or by its natural antagonism to the ovarian internal secretion. The later menorrhagias of uterine insufficiency are little influenced by pituitrin, but may be controlled by the X-rays, which act by destroying the ripening follicles of the ovaries, a still further proof that endometrial bleeding is dependent on the apparatus of ovulation, probably through the agency of an internal secretion.

Ovarian Therapy.—Since my earliest trials in ovarian therapy I have repeatedly noted better results from extracts made from the whole ovary than from those made exclusively from the corpus luteum, notwithstanding the fact that much evidence in the literature is to the contrary. There are certain theoretic reasons why this should be so. The matured corpus luteum is an organ which has discharged its function; the cells of which it is composed are inactive, regressive and the very color which characterizes it is the result of disintegration of elements of the blood. Even the most enthusiastic supporters of the corpus luteum theory admit that the ovarian secretion must be manufactured elsewhere than in the corpus luteum during the years preceding puberty, when there is no corpus luteum. That an ovarian secretion is being elaborated at that time cannot be doubted when one considers the profound effect on the organism produced by castration before maturity. Whether this early secretion has its origin in the incessantly ripening follicles or in the highly differentiated connective tissue of the ovarian stroma is not important for the present question. Certain it is that both these tissues continue to functionate actively until the climacteric and by eliminating them in using only corpus luteum extracts it is reasonable to suppose that an important element of the ovarian secretion is neglected.

In our use of corpus luteum extracts we have found them less efficient and more inconstant in their action than the extracts from the whole ovary. Our chief difficulty in using the corpus luteum has been from the digestive disturbance which it is apt to produce. This is due partly to the admittedly toxic properties which the corpus luteum possesses and partly to its tendency to rapid decomposition.

The ovarian extract on the other hand has proved toxic in only a few instances in which it is probable that the patient either obtained a stale article in the first place or allowed it to decompose by improper care.

I do not wish to be understood as saying that the corpus luteum does not contain an internal secretion that possesses therapeutic virtues, for there is too much scientific evidence to the contrary. I wish only to claim that of the two extracts which are now available from the laboratories of the great abattoirs that from the whole ovary is of considerably greater practical value.

The subject offers to the gynecologist an interesting and important field for research. There are the chemical problems of extraction and administration to be solved, for undoubtedly the integrity of the ovarian secretion must be damaged both in the process of preparation and from the action of the digestive juices before its absorption in the circulation. It must be determined what animals produce a secretion most favorable for the human organism. It is not unlikely that secretions from different elements of the ovary may be adaptable to certain pathological disturbances. Thus one might reasonably suppose that extracts from the developing follicles and ovarian stroma would be especially beneficial for hypoplasia, genital atrophy, the ablation symptoms, etc., while extracts from the corpus luteum would be indicated in menstrual irregularities, such as the amenorrheas of youth, lactation atrophy, etc. In corpus luteum therapy the question of the respective value of the corpus luteum of pregnancy and that from the nonpregnant animal must be settled. In our own series of cases we have suggestive evidence that with better preparations and a more accurate knowledge of the administration extracts of ovary may become useful in treating certain conditions of dysfunction of the ovaries, as manifested by painful molimina, vicarious menstruation, menorrhagia, dysmenorrhea and even sterility.

In addition to the above mentioned instances in which the ovarian secretion bears an important relationship to our practical work, there are several other minor considerations which should be taken into account. Of these may be mentioned the question of the results of oophorectomy during pregnancy.

One of the earliest observations in the study of the ovary as an organ of internal secretion was that of Fraenkel, who showed by animal experimentation that the corpus luteum presides over the integrity of the fertilized ovum during a certain period of its early growth. If the corpus luteum be ablated during this period Fraenkel claimed that abortion would immediately ensue. After this fixed period, which varies in different animals, ablation of the corpus luteum does not produce abortion. Although Fraenkel's experiments have not been entirely substantiated, nevertheless it is commonly accepted that the life of the foetus is guarded by the corpus luteum during the first few weeks, and that this duty is then probably assumed by the placenta. The corpus luteum period of supervision in woman is set at from two and one-half to three months. The practical surgical lesson which this theory brings to us is well illustrated by the following case:

A young woman pregnant two and one-half months was found to have a retention cyst the size of an orange, from which she was having mild symptoms of torsion of the pedicle. It was decided to remove the cyst. On opening the abdomen it was found that the corpus luteum of pregnancy was attached to the thin wall of the cyst. The simple operation of removing the cyst was quickly followed by an abortion. Inasmuch as the removal of cysts during pregnancy only rarely causes miscarriage, it is reasonable to suppose that this case substantiates Fraenkel's theory and that the death and discharge of the foetus was due to the ablation of the corpus luteum. In the light of this experience it is not unlikely that if the corpus luteum had been present in the normal ovary, or if the operation could have been deferred for a month the patient would have gone to full term.

The relationship between the ovaries and the other glands of internal secretion is a field of wide interest which the scope of this paper can only touch upon. There is evidence that the sex glands have a balancing influence on the action of the pituitary gland. In a case recently reported in the literature, a woman who had exhibited moderate symptoms of giantism after puberty developed a very rapid acromegaly after removal of the uterus and ovaries for fibroids, at the age of thirty-eight.

The deleterious influence of pregnancy and child-bearing on Graves' disease has long been well known, and patients suffering from this disease should be advised not to marry. In the realm of surgery our own experience in a few cases has shown that pelvic operations are apt to cause a marked temporary accentuation of the symptoms of hyperthyroidism, so that we are accustomed to advise against operation unless the indication is vitally urgent, or unless the discomforts of the pelvic condition seem of themselves to be aggravating the symptoms of the thyroid disease.

One of the most important practical lessons that the study of pelvic physiology has taught us is the relationship of ovulation to anatomical conditions of the endometrium. By this we have learned that the uterine mucous membrane passes through a definite cycle of hypertrophy and regression and that the endometrium, formerly thought to be the source of many pelvic ills, is in reality surprisingly immune both to infection and tumor formation. The hypertrophied mucous membrane, which in the process of most gynecological operations was scraped away with so much satisfaction, is now known to represent only the phase of a physiological cycle.

Summary.

1. Genital atrophy, the result of temporary or permanent cessation of ovarian function, may cause abnormalities of great gynecologic importance.

2. Circulatory disturbances of the external genitals, such as kraurosis and furunculosis of the vulva may be greatly relieved or cured by the administration of ovarian extract.

3. Ablation symptoms are in the great majority of instances markedly relieved by administration of ovarian extract.

4. After hysterectomy, vasomotor symptoms follow both transplantation of ovarian tissue and leaving the whole ovary in situ, similar in degree and frequency to those following total ablation of the ovaries.

5. Functional amenorrhea in the young is often relieved by the administration of ovarian extract.

6. In the experience of the writer extracts of the whole ovary are more efficacious than extracts of the corpus luteum in organotherapy.

Discussion.

Dr. Robert L. Dickinson, Brooklyn: I think part of the lack of result in so many of our earlier attempts to overcome the flushes of the menopause by ovarian extract was due to the fact that we used insufficient doses. The use of small doses is almost worthless. Dosage must be pushed to six, nine, twelve, fifteen tablets a day, and only stopped for headache, and then gradually reduced once the full effect is produced. The dose may be dropped to nine or six a day. Then, an interval, resuming after the flushes return. My own taking up again of the tests of ovarian extract has been predicated on a dosage driven to the limit of getting a result or of producing uncomfortable symptoms.

I desire to register a protest against my friend Dr. Graves' statement that in ordinary hysterectomies it is a matter of no moment whether you remove the ovaries, and there is less trouble if you do. My study of two hundred cases seemed to show rather conclusively, in my own work at least, that those that had the ovaries left behind were much less likely to have menopause trouble. It will not do to say simply, "I left the ovaries," or "I took away the ovaries." Did you leave the ovaries with good circulation? John Clark has shown how easy it is to disturb that ovarian circulation. Sampson of Albany, in the last meeting of the American Gynecological

Society at Washington, showed some remarkable X-rays of the injected ovaries and stereoscopic X-rays demonstrating that even the cutting off of the uterine artery in hysterectomy will sometimes atrophy an ovary. Therefore, we have only begun to study the result of so-called "leaving the ovary behind," unless we know that we have left good circulation behind. I still speak strongly for leaving the ovary and tube in all ordinary hysterectomies, provided the ovary and tube are in good condition, and provided the woman is not close to her menopause.

DIAGNOSIS OF INFLAMMATORY DISEASES OF THE LABYRINTH.*

By **JOHN B. RAE, M.D.,**
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ANY discussion of the symptomatology of inflammatory conditions of the labyrinth should now call for some definite method of classification. There are two such conditions whose identity is well established and they may very well serve as a starting point from which other conditions may be approached whose exact classification may still be considered as open to debate.

The first of these is acute diffuse labyrinthitis. This is one of the conditions which was responsible, and rightly so, for the introduction of the qualifying term "manifest." A "manifest" labyrinthitis is one in which the patient exhibits spontaneously, symptoms which can directly be referred to the labyrinth.

The second is the dead labyrinth, the result of chronic diffuse suppuration either still active or residual, and is the type to which the term "latent" has been applied in contrast to the "manifest" type. In the latent type the hearing is quite lost and the vestibular function is completely ablated. The same clinical picture will be presented when the patient under examination has been subjected to the complete labyrinth operation.

The chronic diffuse or latent type is the terminal stage of the acute diffuse type and the progress from the one to the other may be extremely rapid. Acute diffuse suppuration of the labyrinth will completely and permanently destroy the end organs of both the cochlear and vestibular branches, so that within a few days or at most a few weeks, the two conditions can only be clinically differentiated by the reaction to turning and by the galvanic tests.

When we come to consider the so-called "circumscribed" cases we enter upon debatable ground. It is impossible to conceive that any active suppurative process beginning for example at a break in the labyrinth wall in the neighborhood of the horizontal canal and really invading the endolymphatic spaces, should remain circumscribed. On the other hand in such cases, that is those of fistula in the horizontal canal, it is a matter of common clinical observation that these patients present spontaneously at intervals, symptoms which undoubtedly are referable to the vestibular apparatus and which at first glance would bring them under the "manifest" type. But on examination we find them to possess hearing and the vestibular function is not only maintained but is abnormally sensitive to experimental stimulation. On the subsidence of the attack, these patients present clinically the appearance and tests of the ordinary chronic middle ear suppuration.

In another class of cases also the subjects of chronic suppurative otitis media *but without a fistula,* similar vestibular attacks occur. This similarity is very striking. In both varieties there is undoubtedly at the time of such attacks a disturbance of pressure within the labyrinth. This may be vascular in character amounting perhaps to serous effusion and due to local changes outside of the labyrinth. On restoration of normal pressure conditions, the status of the patient is exactly as it was before the attack. Both of these types have one feature in common. They are both the subjects of chronic middle ear suppuration, often of long duration, and are both very liable to have bony changes in the antrum, mastoid cells and aditus ad antrum. They differ only in that in the fistula case, such bony destruction can be demonstrated; while in the other, such a condition is not capable of clinical proof.

The writer, in accordance with the views briefly mentioned ventures to suggest that we would be advancing the cause of more exact classification if in the meantime, we entirely omitted the use of the term "circumscribed" labyrinthitis, and if in its place we described these cases as peri- or para-labyrinthitis with or without fistula.

It will be observed that the further qualifying terms "serous" and "suppurative" as applied to labyrinthitis have so far not been mentioned. In the very earliest stages these forms cannot be differentiated. Indeed the serous variety is very likely the first stage of the purulent. The general statement may be made that the case which progresses rapidly to destruction of both hearing and vestibular functions, is a purulent case, whilst that which runs a less acute course and terminates in resolution with more or less restoration of function has been of the serous type. In other words the diagnosis is made on the results and not on the evidence.

This brief allusion to classification will lead us to consider the symptomatology of the following types: (1) Acute diffuse labyrinthitis, (2) Chronic diffuse labyrinthitis, (3) Peri- or para-labyrinthitis with fistula, and (4) Peri- or para-labyrinthitis without demonstrable fistula.

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(1) Acute diffuse labyrinthitis.

Acute diffuse labyrinthitis occurs in the course of acute or chronic otitis media. In the former case infection is most likely metastatic with a resulting empyema of the labyrinth. In the latter case the labyrinth is most commonly exposed to infection by extension of bony caries. In both cases the course is similar. The onset is sudden and the urgent symptoms are referable to the vestibular apparatus, namely vertigo with nausea and vomiting, disturbances of equilibrium and spontaneous nystagmus. The vertigo is intense so that any movement of the patient may determine a violent attack of vomiting, and the disturbance of equilibrium is such that he is unable to walk. The nystagmus is most commonly rotatory in type, is to the affected side and is to be observed in all positions of the eyes, most markedly, however, an abduction in the direction of the quick component.

Should the patient be made to stand erect it can be observed that he will tend to fall in a direction opposite to that of the quick component of the nystagmus and that the direction of falling can be changed by changing the position of the head.

It is obvious, however, that the patient is in no condition to be removed from bed and the writer wishes to reiterate and emphasize the statement he made in a paper read before the American Otological Society in 1912; namely, that the spontaneous evidence in these acute cases is so informing and convincing that we are in no need of experimental testimony in addition. Accordingly such patients need never be subjected to caloric and rotation tests. In plain English during the acute attack so long as the spontaneous nystagmus is to the diseased side the vestibular apparatus on that side is functionating and no further information can be gained by subjecting this sick patient either to the caloric or rotation tests.

Should nystagmus to the bad side cease and nystagmus to the good side begin, this in itself is presumptive evidence of the destruction of the diseased end organ, especially when associated with loss of hearing. Caloric tests can now be made without much added discomfort to the patient but will give no further information of real value.

The symptoms so far have only referred to the vestibular apparatus and on this evidence alone the case could not be called a "diffuse" one. The functional examination of the hearing is of absolute importance. In the earliest stages the result of the hearing test is determined by the middle ear condition. The patient is deaf for the low notes, hears the high notes, has increased bone conduction, Rinne is negative and the Weber is referred to the bad ear. Should the case be purulent, however, destruction of end organs of both cochlear and vestibular branches quickly ensues. Hearing, tested it need hardly be said with a suitable noise apparatus is completely absent. As a matter of curiosity it may be noted that the patient may say that he hears when the tuning fork is applied over the mastoid antrum. This, of course, is heard in the good ear which can be proved by alternately closing the bad ear and the good one. When the bad ear is closed there is no increase in the sound but when the good ear is closed there is decided increase. The hearing tests must be repeated at short intervals during the observation of these cases if we are to determine the period at which the organ of Corti ceases to functionate.

With the destruction of the end organ of the vestibular nerve nystagmus to the sound side is to be observed and is to be explained by imbalance of centres by the sudden cessation of impulses from one peripheral organ.

This nystagmus is also accompanied by vertigo and disturbances of equilibrium following the rule as described for the primary nystagmus. Should no complication arise these secondary symptoms gradually subside and in a longer or shorter period when balance of centers has been re-established, are not to be observed at all.

This is the course, in general of acute diffuse suppurative labyrinthitis. Should the process have been serous in character without destruction of end organs, complete loss of hearing does not result at any stage, nor do the secondary vestibular phenomena attributable to the center on the good side arise. With the subsidence of the inflammatory process, hearing returns more or less to its previous condition and the vestibular apparatus is gradually restored. In process of restoration nystagmus is irregular to either the good or the bad side.

A variety of labyrinthitis has been described under the name of "Acute Diffuse Secondary Labyrinthitis" and has at least in some instances been attributed to trauma arising from the performance of the radical mastoid operation. It has been the experience of the writer and of those of his colleagues with whom he has discussed it, to meet few if any of these cases and as the course of this variety does not differ in any way from one or other of the forms already described, it does not seem needful to complicate the classification by its addition.

It seems proper at this point to repeat that the serous and purulent variations cannot be differentiated at the outset by any means known to the writer. The rapid progress and early destruction of the end organs on the affected side undoubtedly point to the purulent type. Lack of these would seem to indicate the serous type.

Following acute diffuse suppurative labyrinthitis there is, it is hardly necessary to note, no restoration of either cochlear or vestibular function. The case gradually passes into the second group to be described, namely the

(2) Chronic diffuse labyrinthitis.

These are all cases of chronic purulent otitis media either active or residual and must presumably at some time have passed through the acute stage described above. It is quite likely, however, that no such history may be obtained from the patient and this need be no source of surprise if we reflect that many of these chronic diffuse labyrinths are the result of a panotitis occurring in early childhood in the course of an attack of scarlet fever, measles or diphtheria.

This condition is usually discovered in the routine examination of chronic purulent otitis media cases and the diagnosis is as a rule without difficulty. Hearing is entirely absent on the affected side and the vestibular apparatus is not irritable on irrigation of the ear with cold or hot water. The patient does not suffer from vertigo, there is no spontaneous nystagmus, nor is there any disturbance of equilibrium.

When compensation has been fully established the after nystagmus on rotation may be equal in both directions. But while rotation nystagmus can practically always be obtained both to right and left, it is a matter of observation, especially in recent cases, that the after nystagmus to the diseased side may be considerably shorter than to the sound side.

This brings us to the third class of cases namely:

(3) Para-labyrinthitis with fistula.

These for the most part also occur in the course of chronic suppurative otitis media especially in the experience of the writer when the suppurative process is complicated by the presence of so-called cholesteatoma.

Erosion by caries of some part of the labyrinthine capsule takes place. This is a slow procedure and permits of the walling off by adhesions at the point of exposure, of the perilymphatic space. It might be described as a limited endosteitis.

The commonest location of erosion is in the horizontal canal as it lies in the aditus. In this locality the carious process may also involve the fallopian aqueduct with an added facial paralysis. This combination of positive fistula symptom accompanied by facial paralysis almost certainly locates the fistula in the horizontal canal. Indeed with a dead labyrinth in which no fistula symptom could naturally be obtained, the writer has been able to deduce and later prove on operation, the presence of a fistula in the horizontal canal by the onset of facial paralysis.

The next most common seat of erosion is in the neighborhood of the oval window, and the least frequent in the promontory. It is impossible however, to determine exactly the site of the fistula in many cases before operation. The patient who is the subject of a labyrinthine fistula suffers at intervals from symptoms due to irritation of his exposed vestibular apparatus. As already stated, it is the opinion of the writer that these are by no means the expression of a true labyrinthitis, but are rather determined by alterations in intra-labyrinthine pressure due to conditions outside the labyrinth.

These symptoms vary only in intensity and frequency from those which mark the onset of any diffuse inflammation of the labyrinth, and consist of vertigo disturbances of equilibrium and spontaneous nystagmus. It is when we come to make our cochlear examination and apply our experimental vestibular tests that the differential diagnosis is made.

The hearing tests show the lesion to be confined to the conducting mechanism.

The compression and aspiration tests prove the presence of a fistula in most cases. It should not be forgotten, however, that even when we are dealing with a fistula—as may be subsequently proved on operation—this test may be negative. The defect in the canal may be so blocked off by granulation or cholesteatomatous material as to prevent any pressure changes occurring during the experiment. Should we on compression obtain some coarse nystagmic movements, a conjugate deviation of the eyes in one direction with or without head movements, and should we also obtain on aspiration a conjugate deviation of the eyes in the opposite direction, the diagnosis of labyrinthine fistula may be made. In addition we are now satisfied that we are dealing with a functionating vestibular apparatus, as it is very evident that were the vestibular end-organ destroyed we should not be able even with a fistula to convey any impulses to the vestibular nuclei. In other words, a dead labyrinth with a fistula will not give us a positive test.

After a shorter or longer period, from a few hours to a few days, these symptoms subside and the case is not to be distinguished unless experimentally from the ordinary chronic suppurative middle ear.

The caloric reactions are usually very readily obtained, unless, as previously stated, the labyrinthine capsule is blocked off by granulation or cholesteatoma. The turning tests confirm the presence of irritability of the vestibular apparatus.

To sum up, in this type we have to deal with a patient suffering from chronic suppurative otitis media, with changes in the bone in the aditus, antrum or the mastoid cells, with a break through some part of the labyrinthine capsule, with a functionating vestibular apparatus, and whose hearing defect is limited to the conducting mechanism.

(4) Para-labyrinthitis without fistula.

This type is exemplified by the patient who suffers from chronic suppurative otitis media, who is subject at intervals to attacks referable to the vestibular apparatus, who is presumably suffering from bony changes affecting the aditus, antrum or mastoid cells and whose hearing lesion is confined to the conducting mechanism. He only differs from the previous type in that we are unable to obtain a positive fistula test. That we find many of these cases without fistula has been repeatedly proved on operation.

The caloric and rotation tests also prove the irritability of the vestibular apparatus.

It will be apparent that no attempt has been made in the above brief remarks to go into the constitutional symptomatology of labyrinthine inflammatory conditions. The writer takes it for granted that his hearers are familiar with the experimental methods named and has made this contribution solely in the hope that discussion of this important and interesting subject will result in a simplification of the classification, at this moment cumbersome and complicated.

CASSIFICATION.

1. Acute diffuse labyrinthitis.
2. Chronic diffuse labyrinthitis.
3. Para-labyrinthitis: (a) with fistula; (b) without demonstrable fistula.

THE TREATMENT OF LABYRINTHINE AFFECTIONS.*

By WENDELL C. PHILLIPS, M.D., F.A.C.S.,

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THE treatment of the various affections of the labyrinth, and more especially, that of the purulent invasions of this small space, has not, up to this time, been placed upon any permanent basis. The difficulties of differential diagnosis, and the fact that we know that many cases of purulent labyrinthitis recover spontaneously, even where a part or whole of the labyrinthine capsule becomes necrosed, lead to a wide divergence of opinion regarding the exact indications for operative interference. On the other hand, we must admit that there are cases where it is possible to save life by timely operative procedure. In the present state of our knowledge it would seem that at least a moderate degree of conservatism should rule the action of the surgeon, except in cases that already show the infection to have passed through the labyrinthine spaces into the meninges.

In the preparation of this short paper the writer has before him histories of thirty-six cases of the various types of labyrinthine invasions. Twenty-six of these cases have already been published, the types varying from the destructive lesions of parotiditis and tertiary syphilis to those of acute diffuse labyrinthitis. Out of the thirty-six cases there were fourteen operations upon the labyrinth, seven of which were for the removal of the extensive necrosis or sequestra in patients who had long since passed the acute stage of the disease. This leaves a record of seven operations for more or less acute labyrinthitis. There were five fatalities. One of the fatal cases occurred in my own practice from the rupture of a temporo-sphenoidal abscess and meningitis two months subsequent to the labyrinth operation. This patient might have been saved had he shown any symptoms, barring headache, of the large brain abscess from which he suffered. In two of the fatal cases no operation upon the labyrinth was performed. One of these cases was drained through the cisterna magna and the other was rapidly fatal, and no operation was attempted. In one case, which recovered, a thrombus in the jugular bulb developed as the result of an accidental puncture while removing the necrosed promontory. Two others had accompanying brain abscesses.

Primarily, it may be stated that the indications for operation depend upon the type of labyrinthine involvement. Non-suppurative cases resulting from parotiditis, hemorrhage or other effusions, and epidemic cerebro-spinal meningitis should never be subjected to operation. The labyrinth should not be operated upon in cases of serous labyrinthitis, and herein lies one of the difficulties with which we have to contend, namely, the differential diagnosis between certain cases of serous labyrinthitis and purulent labyrinthitis. In both, the destruction of the cochlea and the static labyrinth may be complete and permanent, and we are without positive differential data, barring our knowledge of the probable cause in each individual case. Complete destruction of function, however, is less likely in the serous cases. Whenever any doubt exists as to whether the case is purulent or serous in character the patient should be given the benefit of the doubt and the operation delayed, pending further developments.

Regarding the indications for the labyrinth operation in actue diffuse labyrinthitis there is bound to be a wide variance in opinion. Its development in chronic suppurative cases seems to be more gradual and these cases offer more hope of becoming circumscribed and hence they are less likely to develop meningeal complications. The seven cases of necrosis or sequestra above reported seem to be confirmatory of this opinion for they were all cases of chronic suppurative otitis media. On the other hand, it is well known that in acute diffuse purulent labyrinthitis, accompanying acute purulent otitis media the infection usually extends rapidly to the meninges, and in these cases early surgical measures seem to be justified. Even though meningeal symptoms have already appeared, a complete labyrinth operation should be done, together with the establishment of drainage of the meninges at, or near, the internal auditory canal. This operation together with the drainage of the meninges has proven effective in a limited proportion of cases of labyrinthine involvement with meningeal complications. It would seem that the recoveries are due to the more or less localized character of the meningitis, hence the meningeal drainage would seem to be a more important factor than the operation upon the labyrinth.

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I am indebted to Dr. C. J. Imperatori for the following history of recovery from an undoubted meningeal involvement as a result of purulent labyrinthitis. This case, however, occurred in a patient who had suffered from chronic purulent otitis media for many years. Miss M. P., age thirty-nine years.

Past History.—Had mostly all diseases of childhood. Measles when twelve years old, which left her with an O. M. P. C. left, otherwise her past history is negative.

Family History.—In so far as present condition is concerned is negative.

Present History.—Three weeks ago began to have severe headaches, mostly frontal, and occipital, and noticed as her headaches increased in severity the amount of urine passed lessened so that on May 4, 1915, when she entered the Park Hospital, she was passing but a few ounces of urine. She was entered in the medical ward, and tentatively considered a case of beginning uremia. At this time she was in a more or less stuperous condition, refusing to answer questions regarding her past history and always rambling off on some irrelevant subject. She had some rigidity at the back of the neck, and lumbar puncture was done, and because of the variety of bacteria within the spinal fluid the pathologist remarked that the fluid seemed to come from one suffering from otitic meningitis. At this, one of the internes said he remembered she had a foul smelling discharge from her ear. On May 6th, Dr. Imperatori was asked to see her. Examination showed the patient lying in a stupor, from which she could be aroused and would answer questions fairly intelligently. There was decided cervical opisthotonos, but no Kernig, no Babinski, no Gordon nor Oppenheim. The other reflexes were decidedly suppressed, and there was a rotatory nystagmus to the right. She was tender over the left mastoid, and she had a very offensive discharge from the external auditory canal. There was some granulations at the bottom of the canal, but no drum or ossicles could be made out. Functional testing of the right side showed an active labyrinth. Caloric reaction within twenty seconds with water at 65 degrees Fahrenheit. Syringing the left side with water at 50 degrees produced no reaction within eight minutes. With a noise apparatus in the right ear there was no response to the voice, tuning forks or whistle. With a 256 c. tuning fork the patient laterized to the right side, that is her sound side. The eye grounds showed some paleness of the nerve vessels, with a slight atrophy of the nerve. Motility of the eyes was normal. The examination of the spinal fluid showed 250 cells, and the variety of the bacteria being so numerous that the pathologist could not make a report from a smear diagnosis. Culturely he was able to recover streptococcus from the fluid. Operation was advised but the family refused permission. On May 9, 1915, the patient was unconscious and could not be aroused and had all signs of terminal meningitis. Finally the family and also the doctors gave permission: "Do your old operation, she is going to die any way," is what they said. Operation: Preliminary lumbar puncture showed a moderately cloudy fluid (300 cells) with a pressure of 20 degrees Strauss instrument. The usual radical operation without cutting a flap was done, and this was immediately followed by a Jansen-Neumann operation upon the labyrinth. The dura was incised at the internal auditory orifice. The sinus was situated very far forward and made the latter phase of the operation somewhat difficult. The patient was returned to the ward, and by the next morning, May 10th, was semi-conscious at intervals, and by the 18th of May was conscious and rational. A lumbar puncture was done twice on May 10th removing 25 cc. of fluid each time. On May 11th, 30 cc. of fluid was removed; on May 12th, 30 cc., and on May 13th, 30 cc. Pressure of the spinal fluid varied between 16 and 30 degrees, the cloudiness gradually disappearing from the fluid. The cerebro-spinal fluid drained considerably through the mastoid wound for the first few days. By the 3d of June she was in very good shape, having regained full control of her sphincters. The quantity of urine gradually increased until the usual normal amount was passed. A plastic closure was done and by the 1st of October there was complete epidermization of the radical cavity. The patient was able to walk alone by the 15th of July using a cane, but there was a slight staggering gait. This completely disappeared. She has a facial paralysis on the operated side. The writer has known of another similar case.

It is not to be expected that recovery will take place in the large proportion of cases, but the fact that the meningeal infection may occasionally be more or less localized offers sufficient encouragement to warrant this attempt to save life. In these desperate cases no half-way measures are permissible and the Neumann operation, wherein the bone is entirely removed, including the border of the internal auditory canal, together with drainage of the celleberral spaces, is the ideal procedure.

In two cases out of the thirty-six the labyrinth symptoms resulted from traumatism at the hands of inexperienced operators while incising the drum membrane. Dr. J. H. Güntzer has reported one of these cases: On May 31, 1915, was called by the family physician to see M. K., male, 31 years old. Found the patient in bed lying on his left side. History of pain in right ear for two days, no discharge. Since the previous evening was unable to walk, felt dizzy and vomited. Examination of the right ear showed the membrana tympani slightly reddened, no bulging and a pinhead perforation about the center of the superios posterior quadrant with a droplet of serous red discharge exuding. The patient had a spontaneous horizontal nystagmus to the left and rotary on looking up; on attempting to rise fell toward the right. Hearing was not impaired, no mastoid tenderness, no temperature, pulse 88. Diagnosis of labyrinthine irritation was made but no assignable cause could be elicited. Calomel and sodium bromide were recommended rather as placebo. This condition lasted ten days before the patient was able to leave the bed. At a subsequent office visit the patient confided that his family physician was called the evening before my first visit to the patient. The patient was told he had an abscess in his ear, and the doctor used an instrument to open it, when the patient at once became dizzy, nauseated, vomited, and was unable to walk.

The labyrinthine irritation was most likely due to disturbance of the foot of the stapes. Fortunately the middle ear and labyrinth were not infected, there was no discharge, and the patient escaped the dire consequences that may have followed such an infection. In the second case both hearing and vestibular functions were completely destroyed. Neither seemed to be of the purulent type, and it is probable that sufficient injury to the stapes was produced to cause either hemorrhage or serous exudate in the labyrinthine cavity. It should be noted that in certain cases of chronic purulent otitis media, the patient complains of recurring attacks of vertigo. Here it will often be found upon investigation that such attacks occur just previous to the throwing off of large masses of cholesteatomatous material. These so-called para-labyrinthitis cases should invariably be subjected to the radical mastoid operation in order to prevent further erosion of the labyrinthine capsule. In fact, in nearly all patients suffering from chronic purulent otitis media who have vertiginous attacks, without signs of involvement either of the auditory or static labyrinth, the radical mastoid operation should be done. This procedure is followed usually by a cessation of the symptoms. In the type known as the circumscribed labyrinthitis where there are labyrinth symptoms with a normal rotation test, a positive caloric reaction and a positive fistulæ test, the radical mastoid operation should be done, but the intact membranous labyrinth should not be disturbed. In cases where the labyrinthine capsule is found to be more or less necrosed and sloughing, or where sequestra involving any portion of the labyrinth are found, the necrotic areas should be removed, but, so far as possible, the operator should avoid extending the procedure beyond the lines of demarcation; in other words, he should not go beyond the walled-off areas. Here a partial labyrinthine excavation is justifiable. Finally, a word of caution, in performing the radical mastoid operation, is here ventured. It is a fact that in a considerable proportion of cases of fatal labyrinthitis reported the histories state that the labyrinth symptoms appeared soon after the performance of the radical mastoid operation. It is fair to assume that in many of these cases the labyrinth invasion results from careless operating, wherein the stapes is dislodged from its position in the pelvis of the oval window, the round window is entered, or the bony capsule is punctured by chisel or curette. These accidents are unjustifiable and should not occur.

This paper has been written with the intent of provoking discussion and bringing to light the opinions and experiences of other observers in the hope that we may more rapidly reach some definite basis regarding the indications for surgical measures.

Discussion.

Dr. Isidore Friesner, New York City: I want to say a word first about Dr. Rae's classification. It is very complete; it covers the ground totally. We must, however, remember this one fact—and that is that in para-labyrinthitis with fistula occasionally the suppurative process may have extended from the middle ear through the bony labyrinthine capsule and through the endosteum. A case in point perhaps Dr. Rae will remember, since it came to the Manhattan Eye and Ear Hospital and was operated on by him.

A man came in with a chronic suppurative labyrinthitis and a cerebellar abscess, to which he succumbed, and I did a post-mortem on him and removed the temporal bone, which I afterward examined histologically. I found then that in the fistula, which had occurred in the external semicircular canal, there was granulation tissue surrounded by a fairly firm capsule—if I may call it so—of fibrous tissue. The trabeculæ which normally hold the membranous canal to the bony canal were very much thickened, but the lumen of the external semicircular canal was entirely occluded. Now, at some time, in all probability, in this man's labyrinthine process he had hearing, and the function of the vertical canals was probably not seriously interfered with. We may call such a case a circumscribed labyrinthitis. This classification (referring to Dr. Rae's No. 3) surely covers the ground.

I want to say, incidentally, that that cerebellar abscess was not of labyrinthine origin. It was an extension through the posterior wall of the antrum, through the dura, and in that manner the cerebellum was infected.

Just another word regarding Dr. Rae's paper, and that is concerning the caloric test. I don't know why a patient with a diffuse labyrinthitis, even though nystagmus be directed to that side, should not be subjected to a caloric test. We must not forget this fact, that occasionally a retro-labyrinthine lesion, that is, a cerebellar abscess or a subdural abscess, may cause a nystagmus to the diseased side, and the caloric test would differentiate there between the dead labyrinth and the labyrinth which has function. Outside of the slight discomfort that the caloric test causes, I have never seen it do any harm. Of course, there would be other symptoms in a case with a retro-labyrinthine lesion, headache, and so forth, but the caloric test does help to differentiate.

Now, with regard to Dr. Phillips' paper. It is remarkable that in a field which has awakened such wide interest as has the labyrinth, there should still exist such radically different views regarding surgical indications. I was in hopes that Dr. Phillips would publish the cases which he has in detail, because I think his paper is exceedingly interesting—particularly because it has gathered together cases from various operators, all of whom are interested in this subject, yet none of whom has had sufficient experience by himself to warrant the publication of authoritative opinions. In other words, here are cases from men who have not committed themselves to any one procedure, and who are not determined to follow certain indications. They have no axe to grind, and for that reason these case reports would be exceedingly interesting.

It is almost universally agreed that the first labyrinthine postulate is, wherever in suppurating ears there is labyrinthine function, that labyrinth should be let alone. It will be remembered that the membranous semicircular canals are attached close to the convex surface of the bony canal, and it is in this convex surface that fistulæ in the bony canals almost invariably occur. It can readily be understood then how dangerous curetting in the region of the fistula is; the granulation on the membranous canal or even the canal itself may be exposed. The cases of circumscribed labyrinthitis observed by us which have done best have been those in which the fistula has been scrupulously let alone.

Where the labyrinth has been dead a considerable time, as evidenced either by the history or by compensation on rotation. And where operation discloses a necrosis of the labyrinth capsule or an invasion of the labyrinthine spaces by cholesteatoma, it seems to me we have failed of the purpose of the radical mastoid operation if we do not remove the necrosed bone, or eradicate the cholesteatoma. This can be accomplished only by some type of labyrinth operation.

As regards the treatment of the acute diffuse labyrinthitis—the so-called "manifest form"—we are still very much in the dark. The cases which occur early with the acute otitides are usually benign. These cases are benign because intra-cranial extension from them, as a rule, does not occur. On the other hand, the cases which complicate latent mastoiditis are usually malignant in that they frequently lead to meningitis. I have seen four such cases; two occurred before the mastoid had been operated on and two after the operation. The two that occurred before the simple mastoid operation died of meningitis; the labyrinth was not touched. Of the two that occurred after the simple mastoid operation had been done, one recovered, and although he was totally deaf in the diseased ear when I examined him, he now has hearing—it is a matter of three months. The other case developed labyrinthitis several days after the simple mastoid operation; the mastoid healed and the middle ear was dry, yet seven weeks after the beginning of the labyrinthitis he developed meningitis, to which he succumbed even though a Neumann operation was done and drainage from the internal auditory canal was established.

With regard to the surgical indications in the acute diffuse manifest labyrinthitis complicating chronic suppurative otitis media, it is only by the repeated collection and comparison of large series of cases such as Dr. Phillips has that we will be able to establish order out of what is now decidedly chaotic. So far, with us, each case has been a law unto itself, and our experience has not enabled us as yet to lay down rules of procedure which are generally applicable.

Dr. John E. MacKenty, New York City: In the case which Dr. Phillips referred to just now in his paper, I would have given him a memory report on it, but I understood that he was going to get it at the Polyclinic, where the operation was done.

Dr. Phillips: They didn't have it.

Dr. MacKenty: The memory report of the case I have is this: The man was brought in about a year and a half ago, with a history of a chronic discharging ear. Headache was severe; his temperature was 102 degrees or thereabouts;

had a slow pulse; fistula test was positive; the lumbar puncture revealed an increased pressure, but the fluid was clear and negative to bacterial growth. He had absolute deafness in the affected ear, and a dead labyrinth. The Neumann operation was done, and we opened the dura at the internal meatus. There was free escape of cerebral spinal fluid. The man continued with his symptoms unabated for a day, and then he began to improve; and so long as the cerebrospinal fluid was flowing from the wound he was all right. When, on the contrary, the drainage became blocked he lapsed into a state of semi-unconsciousness. We would then go in and open up the drain, and the fluid would flow again—thus he would come back to consciousness. This went on for nearly three weeks. At all times the spinal punctures were negative bacteriologically. This man had a dead labyrinth following an actue ear—acute process grafted upon a chronic process in the ear. He had probably a localized meningitis. He finally recovered in very good condition. Now, this is a border-line case, evidently, where the thing had not gone on to general meningitis; but where there was evidently a localized meningitis present.

There is another case I will simply take a minute to describe, which I don't think is very common, which occurred in a patient who was brought to the Manhattan Hospital—on the private floor—and Dr. Richards and Dr. Braun both saw the case. I had known the man for over a year and a half. He came to me frequently with attacks of acute labyrinthine irritation, with all the usual symptoms. He finally got into a condition in one of these attacks of acute labyrinthic irritation where the thing continued from week to week until he was exhausted from vomiting. The peculiarity of the case was this: That at no time during the time I had observed him had he any suppurative process in the middle ear; he had a chronic dry middle ear. During the attacks of labyrinthine irritation the whole inner wall of the labyrinth became flushed and congested; but he had no discharge or no acute process that could be demonstrated.

Dr. Phillips: No suppuration?

Dr. MacKenty: No suppuration; fistula negative. We did a radical operation upon him and found the ossicles stoutly bound down by adhesions. He made a good recovery, and got entirely rid of labyrinthine irritation.

This case is the only one I have seen of its kind, and I think it is a little bit unusual in its aspects. There was a difference of opinion—I had three or four opinions on the question of operation; and Richards was the only man who supported me strongly in operating, saying that he had seen two or three such cases before.

Dr. Wendell C. Phillips, New York City: I don't know that I want to take exception, but I have some hesitation about accepting the statement made by Dr. Rae that in all probability every purulent case of labyrinthitis began as a serous case.

My opinion has always been that a serous labyrinthitis remained a serous labyrinthitis, and a purulent one was purulent from the beginning. Unfortunately we do not get the postmortem experience to confirm our opinions.

A few years ago our differential diagnosis between serous labyrinthitis and purulent labyrinthitis would be something like the following: If the patient showed all the symptoms of labyrinthitis and got well, it was probably serous; and if he died it was probably purulent. But now we know differently, and that many of the cases of purulent labyrinthitis recover spontaneously. In the case that I reported in my paper, of the patient who had the labyrinthine symptoms come on immediately after paracentesis. I never have considered it a case of purulent labyrinthitis, although the function was entirely destroyed. That girl has never recovered her hearing at all, she was in bed two or three weeks and has been in good general health ever since. I believe that her's was a case of serous labyrinthitis. She did not have an extensive purulent condition in the middle ear, and the injury to the stapes was of such a character that it caused a serous effusion into the labyrinth or a hemorrhage and her entire symptoms were due to said effusion.

Dr. John B. Rae, New York City: In considering the end results of the radical mastoid operation perhaps two points may be emphasized in addition to those brought out in the paper and during the discussion.

I know of no other operation in which the result will depend to such an extent on the personal equation of the operator as in this one. Each operator must make his own statistics. The results obtained by A may encourage and stimulate B, but it does not follow that B will have equal success.

My second point is the absolute necessity of the supervision of the after treatment by the operator. The lack of this on the one hand and the practice of it on the other explain the great discrepancy between hospital results and the results in our private cases. In our large institutions it is practically impossible for the operator to see his cases daily, and too often the dressings are not performed by the same member of the interne staff. Improvement in this important point would doubtless better our results.

Dr. Phillips: I have just one more word to say. Dr. Friesner emphasized the point that I have been trying to get the men to appreciate for a long time. It is only when we get a very large accumulation of cases that we are going to be able to get some definite ideas regarding the indications for operation. We must find out what has happened with a large number of operations.

At present my list comprises thirty-seven cases, not all in my own practice, but they have occurred in the practice of myself and my assistants and friends. If any of you have individual cases and will give me the histories of them I will give you credit for them and finally will be able to make a compilation and draw valuable conclusions.

Dr. Rae: I have little to add. I had hoped that this attempt at simplification of the classification would have produced more discussion.

There can be no doubt as to the value of the various vestibular tests when the differential diagnosis is the question. But in the presence of a frank acute diffuse labyrinthitis no information of value is to be obtained by submitting the patient to the great added discomfort of these tests.

With regard to Dr. Phillips' remarks, it is the opinion of the speaker that so-called "serous" inflammation is the early stage—lasting for a longer or shorter period—of all "purulent" inflammation. That resolution may occur during the "serous" stage does not alter the fundamental pathological process.

THE FUNDAMENTAL CAUSES, PREVENTION AND PRINCIPLES OF TREATMENT IN ACUTE MEMBRANE INFLAMMATIONS, WITH SPECIAL REFERENCE TO INFLAMMATIONS OF EAR, NOSE AND THROAT.*

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In presenting a paper on "The Fundamental Causes, Prevention and Principles of Treatment in Acute Membrane Inflammations," the author will try to state as clearly and concisely as possible the deductions drawn from twenty-five years as a specialist, twelve years of which has included active dispensary work—the whole twenty-five years being practically devoted to meeting and combating the ravages of membrane disturbances. The views set forth need not be accepted as authoritative, for they are largely personal views and may be at variance with those generally adopted, but they are presented with honesty of purpose and the hope that they may help clarify the situation as regards the fundamental principles involved in at least common head colds and their allied inflammation of the accessory sinuses, ear, mastoid, pharynx and larynx.

Let us start out with the premise that the human body is a fortress and arsenal, equipped with munitions of war, and a fighting army, that for the *ordinary* diseases has a trained army of body cells, capable of withstanding the onslaughts of an outside enemy if our body functions are working properly and we have *not* an inside enemy undermining our resistance.

For the extraordinary diseases, such as smallpox, typhoid, typhus, and other acute scourges of mankind, our systems seem to require inoculative protection to train body cells against their particular kinds of infection, as was so ably apointed out by Professor Vaughn at the last meeting of the State Society in Buffalo.

All our respiratory membranes and the membrane lining connected cavities, are the common habitat of various inflammatory bacteria of outside origin, ready for propagation and development as soon as our army of defense becomes weakened or is called upon to subdue some inside enemy—this inside enemy seem to be always with us in the form of toxins from intestinal bacteria believed by Combe, an excellent authority on autointoxication—to be provided by nature to complete digestive processes, but these same digestive bacteria, under putrefactive influences become overabundant and a menace unless kept under subjection. Combes thinks it unlikely that digestive bacteria of themselves ever do harm if our liver and intestinal secretions are of normal character and in sufficient quantity to prevent their overdevelopment.

I, myself, believe that our greatest and real problem is to acquire and keep the proper balance between inhibitory intestinal juices and the bacteria of the lower bowel—while this proper balance is kept we need have no fear of colds and other common membrane congestions. In other words the determining "fundamental cause of membrane inflammation" seems to rest upon the fact that our protective army has been called to do battle with an overabundant bacterial development in the intestinal canal, leaving our vulnerable nose, ear and pharynx unprotected and a prey to pernicious micro-organic tenants.

An autotoxic state does not of itself cause inflammations of bacterial origin, but such a systemic state lowers vitality, and auto-protection, permitting inflammatory developments.

By autointoxication is meant those self-poisoned states that come from bacteria originating within our body, not autoinfections that come from bacteria originating outside our body.

Some autointoxications are active, resulting in so-called bilious attacks, etc., some are passive and more chronic, resulting in sensitive cachectic individuals, prone to various disorders.

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* Read before the Fifth District Branch of the Medical Society of the State of New York, at Little Falls, October 6, 1915.

Some autotoxic attacks are only attended by a slight malaise—other attacks are more pronounced, showing fever and a general systemic disturbance. The first mentioned kind is often periodic and is the actual basic cause of many of the chronic diseases of the body, while the more active and profound autotoxic states seem to furnish the groundwork of destructive inflammations.

A putrefactive state of the bowel contents does not always come from a faulty diet—we see many cases where a lowered vitality, nerve fatigue, sluggish liver and other derangements are the ultimate source of a bad digestive condition and the real fundamental cause of acute inflammations, still there is no gainsaying the fact that over-eating or over-indulgence in rich foods prepared to tickle the palate and satisfy the taste is the fundamental cause of many an acute coryza, acute mastoid, or acute tonsillar inflammations showing infections, varying in form from the staphlococcic to the streplococcic.

For practical remedial purposes we have only two propositions to deal with in considering the principles of treatment, making it easy to pick out the natural routes to relief: We must restore vital forces, remove the auto-intoxication or putrefactive disturbances and apply local treatments, operative or palliative. If the inflammation be an active acute one our measures must be aggressive. If it be of the chronic type we can take a more watching and waiting attitude. Acute inflammations call for an active clearing of the intestinal tract, preferably by a mercurial, using enough to get both its antiseptic and cathartic effect, following this within two to eight hours by a saline so that another dose of the mercurial may be given next day if inflammatory activity persists. The claim by those in charge of our patient that there had followed a satisfactory movement of the bowels, is unsafe to consider if the temperature and congestion still indicate but little abatement of the inflammatory action.

My personal method is to give calomel, two to four grains in quarter grain doses, according to the case, repeating it fearlessly as above mentioned. In active mastoid troubles I frequently start them with an enema, in fact I cannot speak too earnestly, nor urge too strongly a prompt, efficient, clearing of the bowels in all active acute inflammations—observation and experience has proved the great value of vigorous measures, and of how often we are led astray by the report of "large movements" when in reality the so-called "large movement" was only a start on what we ought to require. People and sometimes physicians seem to fear the temporary exhaustion of a free purging more than they do the poisonous effects of retaining a putrefying mass.

The prejudice against calomel has deterred and is even now preventing its use in many cases of acute disturbance where its proper and guarded employment would give much relief and perhaps save the patient from the knife. At least this is my experience as one who is constantly dealing with active inflammations of the ear, mastoid, nose and throat, and I have no doubt that the principles underlying inflammations of these parts are the same as the principles underlying inflammations of other parts.

Quarantine and sanitation are solving many problems that have to do with our outside enemies, but the problems surrounding questions of diet, digestive function, eliminative organs and how to keep our inside enemies under subjection is still open to much study and investigation.

We don't know yet whether food should ever even be cooked or baked. We certainly were not created to eat the conglomerate but attractive combination often set before us. It is no wonder that our liver and digestive secretions fail in their task to keep the proper balance: Why not then try to anticipate and prevent inflammations by selected cathartics at required intervals? These are pregnant questions of tne present day, and I feel sure that the medical profession is capable of their solution.

As to the prevention of acute inflammation, I want to say that in big eaters or constipated people it is small wonder that their livers, and digestive secretions fail in their task. Not at all surprising that every week—ten days—or two weeks they find themselves feeling "out of sorts"—actually becoming autotoxic, loaded or bilious. Which then is preferable, wait for a cold or some acute inflammation for a warning, or promptly set eliminative organs at work by a well-chosen cathartic.

In patients who are more or less under observation we can easily note their autotoxic evidences of a greenish, dirty skin, heavy yellow eyes, furred tongue and a strong bitter breath. Perhaps the case is not urgent enough to require calomel and some less drastic combinations will suffice. Where is the harm in being somewhat aggressive if we use discretion in our choice of cathartics and see that they are used as directed, possibly once a week if that particular patient shows a tendency for recurring acute colds or sore throats.

I have scores of patients whose habits of life are such that they load up and become autotoxic every week during the winter months—none of them have been damaged nor habitually constipated by the use of a blue mass and coloycinth compound pill whenever they first notice a nasal stuffiness, chills, sneezing or dry throat, and I am sure such preventive measures have been the means of saving them from many attacks of acute sickness.

In subacute and chronic inflammations, an attempt to anticipate patients' colds or autotoxic disturbances by the administration of glandular stimulants in the form of selected cathartic combinations once or twice a week is probably open to more or less criticism by those who seek the ideal. In fact, I, myself, feel that cathartics should only be used in emergencies or when we have failed to so adjust a patient's life and diet that he has no need of bowel correction or antitoxic stimulants. Until we are competent to so adjust life, habits and food preparations definitely and scientifically it would seem to the author no crime to stimulate the production of autoantitoxins, as above described and protect patients from disturbances that seem sure to occur, when they become surcharged with poisons.

Sajous in the seventh edition of his work on "Internal Secretions," corroborates the views I have repeatedly put forth, since 1908, that mercury seemed to stimulate the system to a larger supply of antitoxic secretions. On page 1157, Volume II, he says: "The beneficial effects of mercury are obtained with doses which increase sufficiently the auto-antitoxin of the blood to destroy the cause of the disease, whether it be a micro-organism and its toxins or endotoxins, toxic waste products, etc." He also says that small doses grains 1/10 are sufficient to stimulate an increased production of auto-antitoxins but, "if flushing of the intestine is desired, i. e., a copious flow of antitoxic intestinal juice, larger doses ⅙ to ½ grain every 15 to 20 minutes until 1 or 2 grains are taken, may be ordered." Professor Sajous is an authority we can all respect, and I would only add that in acute active inflammations I prefer the larger dose.

What I have attempted to show in this paper is probably far from being the "last word" on the subject, but since I have conducted my practice along the lines indicated, noting carefully by the skin, eyes, tongue and breath each evidence of self-poisoning, I find my work much more simple, clear-cut and satisfactory.

I would place emphasis upon the need and utility of local efforts surgical and otherwise, toward keeping inflammation within bounds. We must not disregard the knife, nor delay its use to prevent absorption of pus products, but we are all justified in attempting to avoid operations when the case is seen reasonably early. It can hurt none of us to give a little more consideration to fundamental causes, and be a little less led by the glamour of brilliant operating.

When the patient is "ripe with pus," we have no alternative but to secure free drainage at once, but if they are seen early and we think there is but little if any pus formation, then we can very properly and safely, expect good effects from our "emergency agent" calomel given as above indicated.

My records are so replete with instances where startling and impressive results have followed the adequate use of this form of mercury, even in cases of a most complete saturation with streptococcic infection, that I would urge all to throw aside their fear or prejudice and give it a trial under twentieth century methods or at least use blue mass and castor oil.

All the cases of tuberculosis, coming under my observation in the past twenty-five years as an ear, nose and throat specialist, and there have been a goodly number, have shown a marked autotoxic disturbance with each exacerbation; and these exacerbations have seemed to be the result, rather than the cause of their autointoxications.

The author is strongly suspicious that the experience of the next ten years will show that even tubercular activities can be controlled through anti-autotoxic influences.

It may be asked: Of what good are intranasal and tonsillar operations? The answer is: They not only give more comfortable breathing, but they lessen the sensitive condition of the membranes so that inflammation will be less active and prolonged, if enough has been accomplished by the operative work to secure free normal passages and fewer foccic of infection. Nasal operations do not *prevent* head colds, but after them inflammations are less disturbing and more easily controlled.

In conclusion I would repeat that a cold or an active membrane inflammation, seems for practical purposes to be due to the fact that our defensive army of anti-bodies has been called to subdue the enemies within our intestinal tract, leaving us vulnerable to the micro-organic tenants of our respiratory membranes. The actual determining fundamental cause of a cold, though, is a diet indiscretion or a lowered vitality which allows the autotoxic state that makes us vulnerable.

Toxins arising from putrefactive changes in constipated subjects permeate the whole system and saps the vital resistance. Concisely stated, intestinal autointoxication permits inflammatory activities elsewhere. Our patient then is more susceptible to outside infections.

Remedial effort seems best to be directed toward subduing the enemies within by a mercurial or some efficient stimulant of antitoxic secretions. Preventive effort—toward good hygiene and a rational life—keeping in mind the idea that the battle between our enetro-toxins and our anti-bodies is what permits our ever-present outside enemies to gain an ascendency.

RECENT STUDIES IN DIABETES MELLITUS.*

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THE present intensive and precise methods of treatment of diabetes mellitus owe their inception to Dr. Frederick M. Allen, of the Rockefeller Institute. Allen's demonstration that even the most severe cases of uncomplicated diabetes can be made and maintained both sugar and ketone free, constitutes an epoch-making contribution to American medicine.

Many students of clinical medicine thus encouraged by the work of Allen, have taken up anew the study of this disease. That important advances have been made is due in no small part to the work of a score or more of American physiological chemists and internists who have developed practical laboratory methods for the study of human chemistry. These new or improved methods have made it possible for us to investigate and interpret phenomena which hitherto we have not understood, or of which we have had no knowledge.

The particulars in which the present treatment of diabetes differs essentially from that formerly employed, are illustrated in the following comparative tabulation:

Comparison of Present and Former Methods of Treatment.

Former.	*Present.*
1. Patient treated in the home.	1. Patient treated in hospital equipped with a metabolic ward.
2. Diet.	2. Diet.
(a) Patients treated on general plan.	(a) Individual plan.
(b) Carbohydrate partly restricted, but liberal in amount.	(b) Carbohydrate reduced to point of making and maintaining patient sugar free.
(c) Protein greatly increased over normal diet. No definite determination as to amount needed.	(c) Protein tolerance carefully determined.
(d) Fat fed in excess and empirically.	(d) Fat tolerance also carefully determined.
(e) Patient fed up to normal food requirement.	(e) Patients rarely fed up to normal requirement.
(f) That glycosuria results from excessive carbohydrate in diet.	(f) Besides carbohydrate it may result from protein irritation, fat irritation, or too much food even with low carbohydrate intake.
3. Ketonuria regarded as a serious phenomena difficult to and rarely overcome.	3. Ketonuria now readily cleared up by proper dietary restrictions.
4. No attention paid to water content of body or water balance.	4. Maintenance of water balance may be of highest importance.
5. Influence of infections not understood or neglected.	5. Infections seriously lower food tolerance of diabetic.
6. Weight of patient important.	6. Weight of patient comparatively unimportant.
7. Exercise feared in severe cases.	7. Exercise now encouraged.
8. No instruction of patient.	8. Instruction of patient emphasized. (a) Chemistry of diet. (b) Individual food needs. (c) Daily testing of urine.

Comparison of Present and Former Methods of Study.

Former.	*Present.*
1. Occasional and sporadic examination of urine for sugar; approximative tests and without reference to food intake.	1. Exact daily determinations of urine sugar. Patient on definite diets.
2. Great significance attached to specific gravity.	2. Specific gravity now disregarded.
3. No attempt to measure acidosis except by rough qualitative tests.	3. Acidosis measured fairly accurately by: (a) Total urine acid output, plus. (b) Total ammonia output. (c) Carbon dioxide tension of alveolar air or combining power of blood.
4. Blood studies rarely made.	4. Blood studies for sugar, fat, and lipoids important.

Comparison of Results of Present and Former Methods of Treatment.

Former.	*Present.*
1. Mild cases rarely sugar free.	1. Mild cases practically sugar free after first few days.
2. Severe cases rarely sugar or acid free.	2. Severe cases may be kept both sugar and acid free.
3. The disagreeable symptoms which accompany uncomplicated, persistent diabetes only slightly modified.	3. These symptoms practically all disappear.
4. Life but little prolonged.	4. Life indefinitely prolonged.

During the past year I have had under observation in my clinic eighty-two cases of diabetes, ten of whom have died. The important facts regarding these patients and the relation of the treatment thereto are illustrated in the accompanying tables and charts.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 18, 1916.

TABLE No. I.

RELATION OF AGE TO TREATMENT.

		Living		
Age	*No. of Cases*	*Well*	*Poorly*	*Dead*
1-10	7	6	..	1
11-20	14	10	3	1
21-30	4	1	2	1
31-40	15	13	2	..
41-50	14	8	4	2
51-60	21	17	..	4
61	7	6	..	1

Comments.—Young patients do very well and as a rule are very obedient. The "living" patients doing "poorly" are those who frequently exhibit acidosis and glycosuria, and who have to be more or less constantly under observation.

TABLE No. II.

RELATION OF COMPLICATIONS TO DIABETES.

No. of		*Living*		
Cases	*Complications*	*Well*	*Poorly*	*Dead*
41	Uncomplicated	32	5	4
16	Infection	12	1	3
3	Gangrene	1	..	2
10	Kidney lesion	7	2	1
15	Lipoidemia	14	1	..
2	Advanced Arteriosclerosis	2	..	..
2	Other complications	2	..	..
2	Wassermann positive	2	..	..
28	Wassermann negative	27	1	..

Mouth infection not included in this table.

Comments.—Diabetes is much more amenable to treatment when uncomplicated than when associated with infection or arterial degeneration. Infections tremendously lower the tolerance of the diabetic, and advanced arterial degeneration apparently is but slightly, if at all, modified by the treatment of the diabetes.

Syphilis is probably a rare factor in the causation of diabetes. In the thirty cases examined, there were only two reactions, and in both of these the diabetes antedates the syphilitic infection.

Lipoidemia is probably a common phenomena in advanced diabetics with low food tolerance. The marked rise of the cholesterin content of the blood in greatly undernourished patients suggests a pathological physiological disturbance like that observed in pellagra where cholesterinemia is also present.

TABLE No. III.

RELATION OF TREATMENT TO SEVERITY OF DISEASE.

No. of Cases	*Stage*	*Living*	*Dead*
33	Advanced	22	10
21	Moderately advanced	21	..
29	Mild	29	..

Comments.—Of the ten patients who died, four succumbed to the exhaustion occasioned by severe surgical operations. None of these died in coma. Of the remaining cases, four refused to continue the severe deprivation necessitated by the treatment and ate freely and indiscriminately of general foods. One patient, a little girl six years old, while both sugar and acid free, suddenly developed severe pain in the abdomen, followed soon after by nausea and vomiting, and twenty-four hours later by death. Post-mortem was not obtained and the cause of the initial pain and vomiting was not learned.

TABLE No. IV.

RELATION OF OBSERVANCE OF TREATMENT TO RESULT.

No. of Cases		*Living*	*Dead*
73	Obeying	66	7
9	Disobeying	6	3

Comments.—It is often said the diabetics will not adhere to the diet. Their obedience is usually in direct proportion to the thoroughness of the instruction given them and their intelligent understanding of the problem. This is one of the chief reasons for the institutional treatment of diabetes. The patient who makes a business of getting well is much more likely not only to get well but also to adhere to the regime necessary to remain sugar and acid free.

METHODS OF TREATMENT.

When a patient enters the hospital a complete physical and preliminary examination is made. If he presents evidence of advanced diabetes, he is put on a diet containing a liberal amount of green vegetables, beef broth, eggs and meat. This diet is gradually reduced from day to day over a period of a week or until the patient is practically sugar and ketone free. Then he is given a fast day on which broth alone is fed. This usually serves to clear up the remaining traces of sugar and diacetic acid in the urine.

The foregoing precautionary treatment is very important. It is an extremely hazardous procedure to fast an advanced diabetic, particularly one accustomed to a generous diet. Not infrequently such a fast will precipitate nausea, vomiting, coma and death. The writer had this happen once on his own experience and has observed it several times in the practice of other physicians. Mild cases, however, may be subjected with safety to the initial fast, provided plenty of fluid in the form of water, tea and broth are given.

The next step in the treatment is to feed the patient carbohydrate food in the form of green vegetables, beginning with those having a low starch content. Then gradually should be added proteins in the form of eggs and meat. After a week or more of cautious feeding, using the urine findings as a guide, fats are added. For exact details as to dietary procedure the reader is referred to the excellent papers of Joslin on the subject. There is no general plan, however, which will fit all cases. The clinician must be guided by experience and daily investigations on the patient. Some patients need frequent "rest" or "fast" days; others get along quite as well with an occasional "semi-rest" day.

In the study of the case the physician should attempt to learn how much carbohydrate the patient will tolerate when the proteins and fats are low, also when these foods are taken in moderate amounts, because in the majority of cases a diabetic will tolerate much more carbohydrate when eaten alone than when combined with other foods. Advantage is taken of this fact in getting rid of persistent acidosis.

A diabetic should never be fed to the full limit of his tolerance. It is rarely wise to give a patient more than half or at the most two-thirds of the carbohydrate which he can apparently utilize. By keeping well within this tolerance patients often continue to improve and gain additional power to metabolize food.

In my clinic it is our custom to spend much time in teaching the patients how to construct and calculate the chemistry of their diets. Each one is given a book containing a simple food chart and instructions. Each day he is required to record and estimate the value of the diet given, and in addition to test his urine both for sugar and diacetic acid, which is also recorded. Twice a week conferences are held at which are discussed the problems involved in the treatment of the disease and the preparation of the diet. All of the practical points learned in the hospital he writes in his book and this he takes with him to his home. It becomes his permanent personal record of how he got well. In case of future trouble it serves as a guide until other aid can be had.

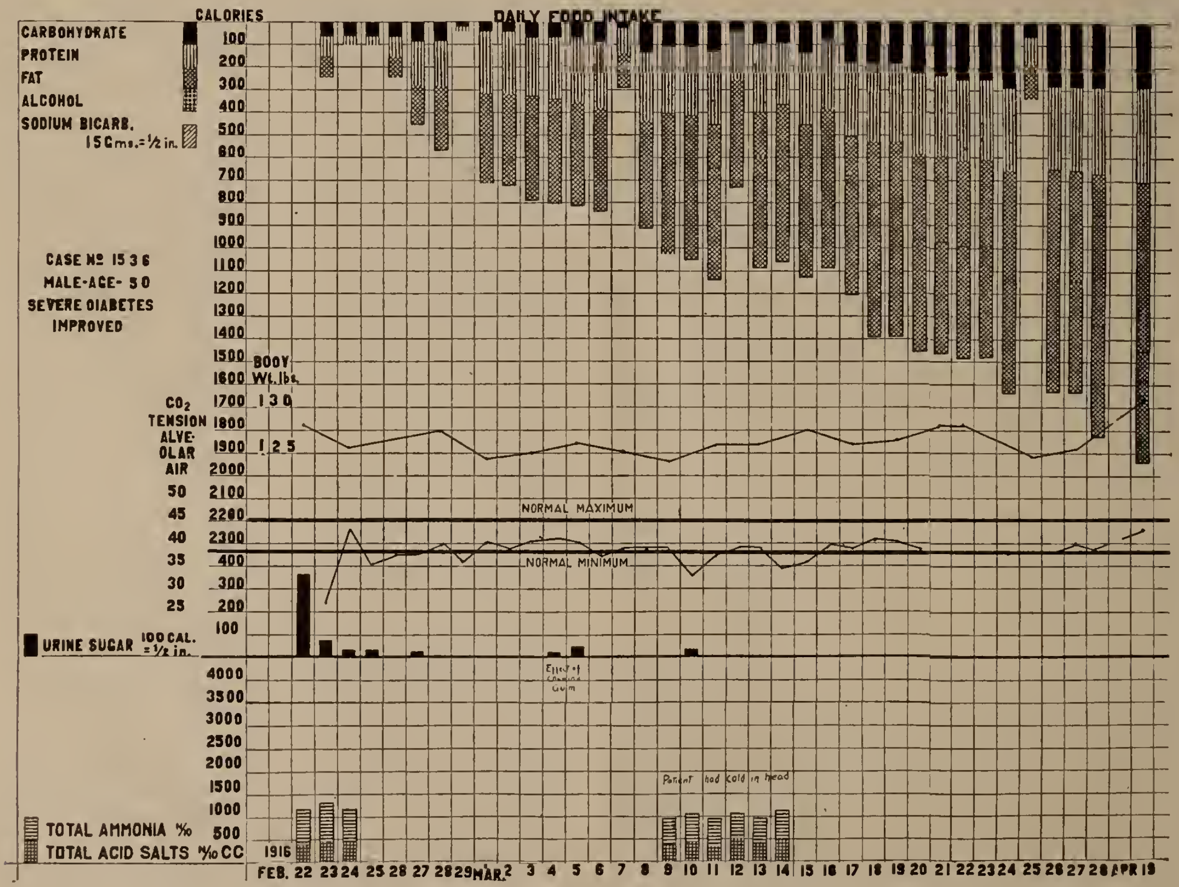
It is our endeavor to firmly establish the following thoughts or principles in the minds of the patients:

1. Henceforth eating must not be relied upon as a means of pleasure to the body. Pleasure must be obtained in some other way and the diet should be used only to bring to the body the maximum physical efficiency.

2. Certain common eating habits must be abandoned and new ones developed. The taste for sweets must be given up, and anything which will keep alive this appetite must be avoided. Therefore artificial sweetening agents, like saccharin, should be discouraged.

3. The patient must be taught and inspired to develop a spirit of obedience, self-reliance and *esprit de corps*, which will enable him to faithfully observe the plan best suited to his needs. Nothing short of Spartan courage will carry an advanced diabetic through the critical days of low food tolerance with its accompanying loss of weight and strength.

Inevitable failure awaits the physician who attempts by mere rule of thumb to treat the



Case No. 1536.

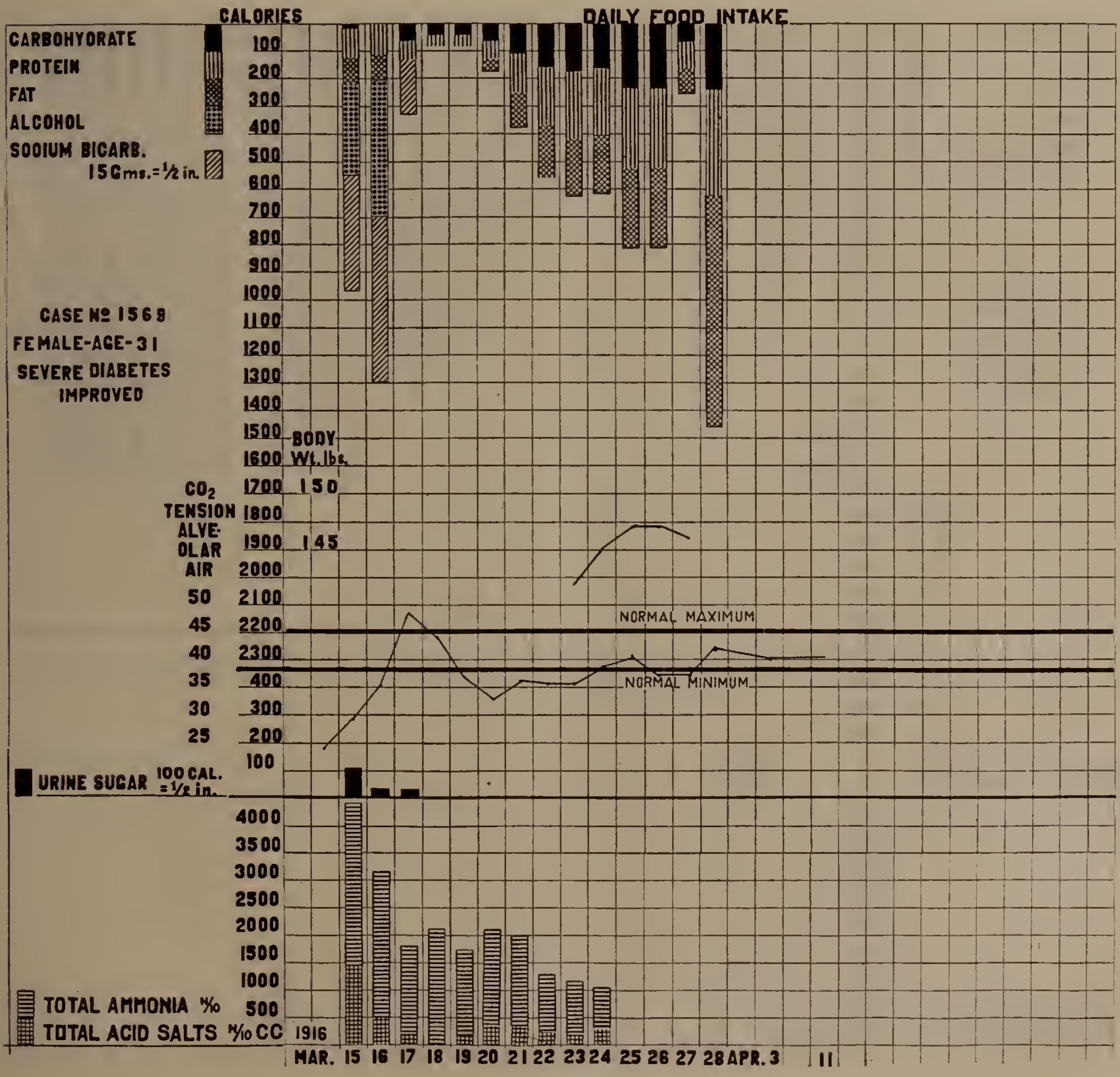
unfortunate victims of this disease. It cannot successfully be carried on in the home. The instruction and inspiration of the patient are as important as the scientific observations on his disease.

In conclusion I wish to express my profound obligation to Drs. Elliott P. Joslin, Frederick M. Allen and Edgar Stillman for much valuable aid and encouragement in this study.

EXPLANATION OF CHARTS.

The charts used as illustrations in this paper are photographs of those used in the hospital for the double purpose of study and for teaching patients. They are designed to show the daily food intake and the effect of the diet as evidenced by the urine examination and lung air tests.

The food intake is plotted in calories, each food principle including alcohol having a different type of cross-hatching as is indicated by the key. The total length of these several blocks represents the total caloric intake. Sodium bicarbonate is plotted in grams in which each subdivision or one-half inch on the original chart equals 15 grams. Body weights represent naked weights. Carbon dioxide output of the lung air is plotted in millimeters of barometric pressure. The bold lines marked "normal maximum" and "normal minimum" represent the accepted normal limits of carbon dioxide output. A carbon dioxide tension below 38 mm. is evidence of acidosis; above 45 suggests alkalosis. Figures below 25 mm. indicate a very severe acidosis. Urine sugar is plotted in calories on a base line so marked. Thus the carbohydrate intake can readily be



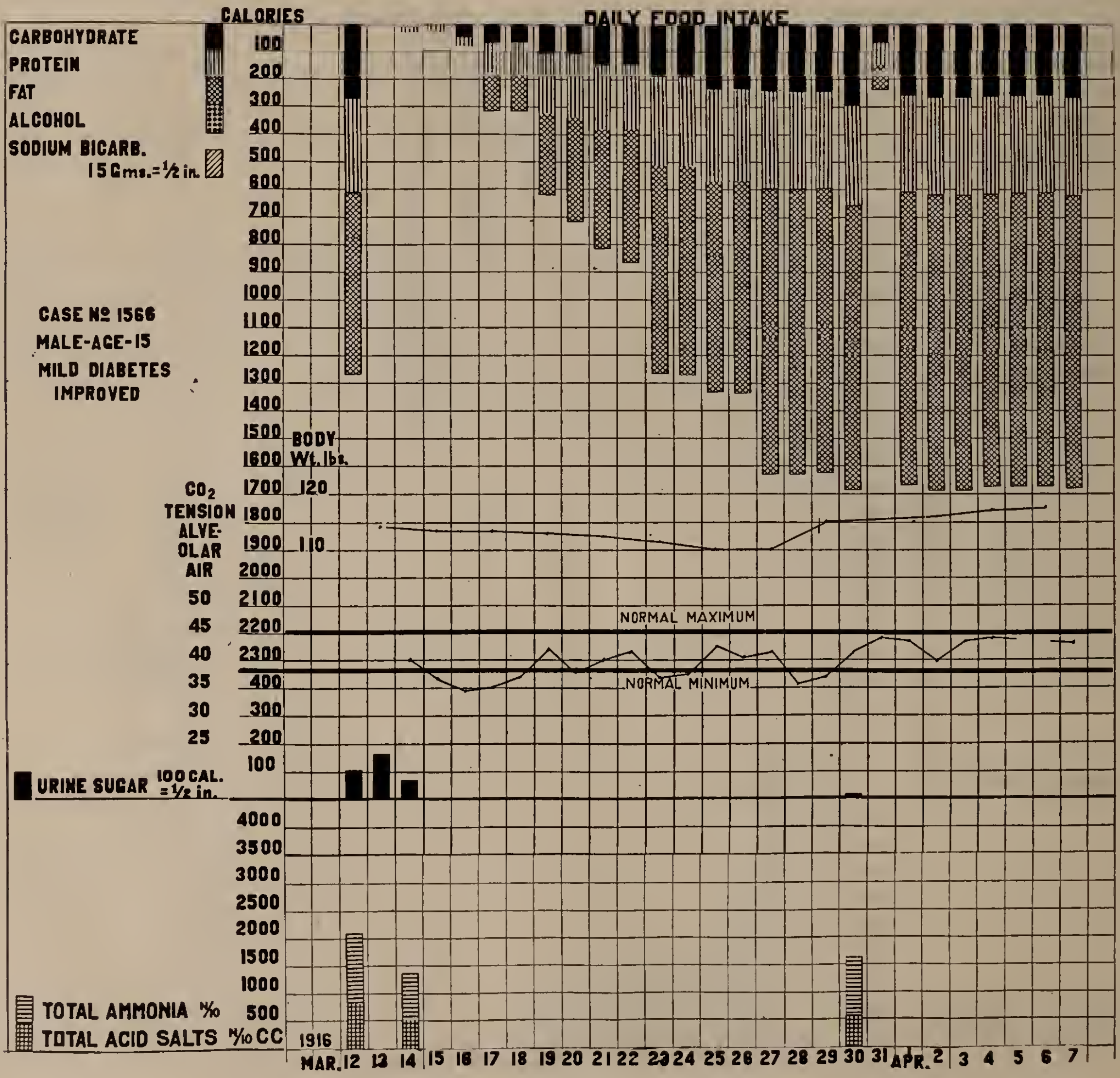
CASE No. 1569.

compared with carbohydrate loss or out-go. Urinary acid excretion is plotted in terms of deci-normal alkali, as acid salts and ammonia, estimated by the Folin method. The sum of these is a fairly accurate expression of the total urinary acid excretion.

The excretion of urinary acid does not always accurately measure the severity of acidosis. When the carbon dioxide tension of the lung air is low the output of urinary acid is usually high. When it is not low under such conditions it means that the non-volatile acids of the body are being retained. Therefore a comparison of the carbon dioxide tension of the lung air with the urinary acid excretion affords an index not only to acidosis, but also to acid retention.

Case No. 1536.—Moderately advanced diabetes of four years standing. On March 4th and 5th patient chewed sweetened gum, which caused a return of the glycosuria. On March 9th to 14th, inclusive, patient had severe coryza which caused a mild acidosis. Infections always lower the tolerance of the diabetic and may be a serious factor in advanced cases. This patient had abandoned hope of ever getting well. Since leaving the hospital he has re-entered business and apparently is gaining in strengh and continuing to improve.

Case No. 1569.—This patient had vomited almost constantly for two days before entering the hospital, March 15th, with the result that she lost a large amount of fluid, and thus had a serious disturbance in the water balance or water content of her body. On admission she was suffering from severe pain in the diaphragm, was drowsy, and exhibited signs of marked air hunger. This represents the early stage of coma.



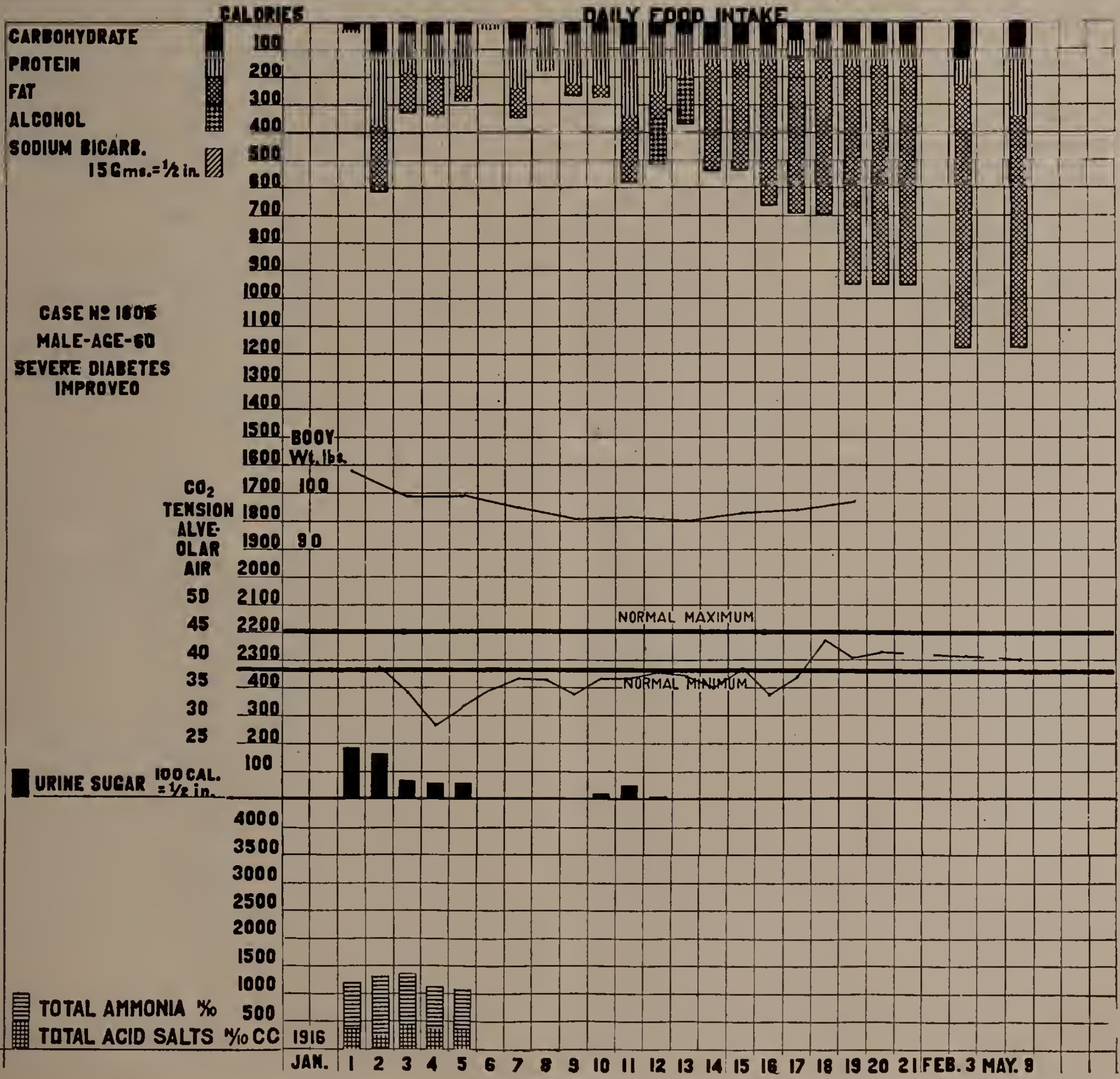
Case No. 1566.

The low carbon dioxide tension of her lung air and the excessive excretion of ammonia and acid salts reveal the intensity of her acidosis.

The purpose of the treatment was to restore her disturbed water balance, and this was done by giving her large amounts of clear broth, whiskey, water and bicarbonate of soda by mouth, and also bicarbonate of soda and water by the rectum, subcutaneously and extravenously. The soda solution under the breast caused serious soreness which persisted for more than two weeks. It is inadvisable to give alkaline solution in this way. (Joslin.)

This patient was a mild diabetic in the beginning, but by eating two pounds of candy within a period of forty-eight hours precipitated the attack of nausea and vomiting, with the resultant disturbance in water balance, which transformed quickly the mild stage of the disease into one of profound acidosis. She made an uneventful recovery, and has since remained well.

Case No. 1566.—Acute mild diabetes in a boy aged fifteen years. At the time of admission to the hospital he was on a restricted but variable diabetic diet. He was fasted for twenty-four hours; then given broth for forty-eight hours, after which his diet was rapidly increased. It will be observed that on March 15th, 16th, 17th and 18th a slight acidosis was present, as is evidenced by the carbon dioxide tension of the lung air. This usually occurs with the withdrawal of food. On March 30th patient was slightly nauseated and had gastro-intestinal distress. There was a sharp rise in the acid and ammonia output as well as a trace of sugar in the urine. Gastro-intestinal disturbances not uncommonly produce this temporary lowering of tolerance,



Case No. 1606.

which in severe diabetes may be fraught with danger.

Case No. 1606.—Severe diabetes in a patient showing temporary protein irritation or intolerance. This patient continued to eliminate ketone bodies and exhibit other signs of acidosis until the protein intake was greatly reduced, when he immediately began to gain. At first it was thought that he had fat intolerance and he was accordingly treated but without benefit. Note that on May 9th he could eat without evident harm a diet which in the early part of January probably would have precipitated coma.

Discussion.

Dr. Nathaniel B. Potter, New York City: Dr. Williams' fascinating paper shows the result of a tremendous amount of work. His enthusiasm explains it. I congratulate the section on hearing such a splendid contribution. I wish to ask Dr. Williams what relationship exists between lipoidemia and acidosis.

Dr. Williams: I can't say. I know that in some cases there is no apparent relation.

Dr. Potter: The value of the Allen cure seems to me can be best stated in that it is more of a preventative than a cure. When a patient's urine was examined only once in a fortnight or a month, it would get so far along that glycosuria would increase to such an extent that it became difficult or impossible to free the urine from sugar. Patients got into a dangerous condition. I think one reason why they have such wonderful results at the Rockefeller Institute is because of the accuracy and marked simplicity of diet. their patients only take the simplest articles of diet, with much less leeway in their choice and so not offering as much temptation for variations when the patient goes home, but furnishing a diet in which the carbohydrate and fat is more uniformly utilized. There is certainly a difference in many patients in the way they utilize the carbohydrate of the green vegetables and the carbohydrate of, for example, cereals.

I think there are three things which are going to be demonstrated in the near future in regard to the great importance of the so-called Allen treatment. One is the possibility or advisability of accomplishing the same result without too frequent starvation days, another is the problem of exercise because all diabetic patients do not take exercise equally well, and a third is the regulation of more minute dietetic details including both the selection and the preparation of the diet.

PELVIC INFLAMMATION.*

By ROBERT BURNS, M.D.,

SYRACUSE, N. Y.

Pelvic inflammatory disease, literally speaking, is an infection of any of the organs contained within the pelvic cavity; but the term in practice is limited to inflammations involving the uterus, tubes, ovaries, pelvic peritoneum and the pelvic cellular tissue. The local structures that are by far the most commonly and the most seriously affected are the Fallopian tubes. The bacteriology of pelvic infection has received considerable attention and has been fairly well worked up, yet there is by no means a unanimity of opinion among observers as to the relative percentage of the various micro-organisms found.

Etiology.—Winter and Ruge estimated that gonorrhea is present in from 80 to 85 per cent of all cases. E. Wortheim states that gonorrhea is the most frequent cause of suppuration met with in gynecological practice. Dr. McFarland, writing in the *Glasgow Medical Journal* of September, 1911, gives the following statistics of 100 cases that came under his care:

62 per cent followed puerperal or abortion sepsis.
20 per cent were caused by the gonococcus.
5 per cent could be traced to the tubercle bacillus, and for the remaining 13 per cent no definite cause could be ascertained.

Dr. H. Cummings, of Ann Arbor, in the *Journal of Obstetrics* of January, 1914, gives the following results in a series of 200 cases that he studied:

43.5 per cent were due to puerperal and abortion sepsis.
38 per cent were due to the gonococcus.
10.5 per cent were caused by the tubercle bacillus, and the remaining 8 per cent were of unknown origin.

In a series of thirty cases observed by myself in the ward of the Hospital of the Good Shepherd, the findings were as follows:

In seven cases no bacteriological examination is recorded.

In eleven cases the results were negative.

Two cases showed the gonococcus alone.

One case showed the gonococcus and the staphylococcus.

Three patients exhibited the staphylococcus alone.

Four showed the staphylococcus and streptococcus.

One the bacillus coli and staphylococcus.

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* Read before the Syracuse Academy of Medicine, February 16, 1915.

One the bacillus coli, streptococcus and staphylococcus.

One patient from whom the smears were negative died of a tuberculous peritonitis with involvement of the pelvic organs. From the above findings, the following deductions can be made:

37 per cent were of doubtful origin.
30 per cent were caused by the bacillus coli, streptococcus and staphylococcus.
10 per cent were caused by the gonococcus.
3 per cent were caused by the tubercle bacillus.
20 per cent failed of examination.

The negative findings in my series cannot be relied upon as final, because they partially represent smear examinations only. The bacteriologist tells us that the diplococcus of Neisser is an elusive germ, and when the stained smear is negative, the suspicious material should be cultured, as culturing is the only sure means of determining the presence or absence of this micro-organism.

The percentage of gonococcic involvement is lower than generally observed, and is undoubtedly too low, as many of the patients exhibited symptoms that were suspicious of a venereal origin. The smears were taken from the cervix always, from the urethra if a pus discharge could be expressed, and from any other point that showed a discharge. After operation the diseased tissue was incised and a smear was taken from the interior of a hollow organ or from the interior of any pathological cavity.

The pathological changes are many. Infectious material traveling through the uterus sets up an endometritis, and when it reaches the Fallopian tubes, a salpingitis results. The process may stop here; the fimbriæ become closed, and there remains a hydro or hemo or pyo-salpinx, depending upon the virulence of the infective agent and the reaction of the host. When infiltration and permeation of the walls of the tubes occur, or when the noxious material escapes through the patent fimbriated end of the tube, involvement of the pelvic cellular tissue and peritoneum results with the formation of an exudate. This exudation may rapidly increase in size, become walled off from the general peritoneal cavity by the gluing together of the omentum, contiguous intestines and other structures, and breaking down in its interior present the phenomena of a pelvic abscess. If the infection spreads through the lymphatics, the pelvic organs may show little or no active inflammation, and the exudate may form and break down at some adjacent point in the pelvis or lower abdomen. This occurred in one instance of puerperal infection. The patient had been attended in confinement by a midwife. A large firm exudation was easily palpated in the pelvis, and when punctured through the cul-de-sac, there occurred a slight bloody discharge only. Abdominal operation disclosed that fact that the infection had spread through the cellular tissue or lymphatics of the right broad ligament, not infecting the tube, and then located itself in the tissues behind and below the cæcum, producing a large abscess in this location. Infection entering the blood stream through any of the vessels produces the severe, but fortunately rare, form of general septicemia. Locally, in this phenomena, there is found lymphangitis or phlebitis in the broad ligaments. Bacteriologically, the gonococcus affects by preference the Fallopian tube, the tubercle bacillus also, while the other organisms apparently seek the cellular tissue. The subacute and chronic forms are characterized by the formation of extensive adhesions, binding the contiguous structures in irregular mass formations and practically invariably resulting in malformation with destruction of the functions of the Fallopian tubes.

The mode of onset is subject to wide variations. There are frank cases of infection by the diplococcus of Neisser, giving the classic symptoms of profuse leucorrhea, ardo urinæ, vulvitis and local distress. This mode of onset represents, however, but a small proportion of the cases caused by this micro-organism. In a larger proportion, the onset is more insidious. The acute manifestations are slight and give rise to no apprehension, and the true cause of the patient's distress is only disclosed by pelvic examination that reveals the characteristic mass. Tubercle bacillus invasion is generally insidious, and may be associated with tuberculosis in some other part of the body. Infection by the other organisms found in pelvic inflammation is apt to be sudden and severe, and the history is generally obtainable of an abortion or of a puerperal condition.

The course of the disease may be acute or chronic. The acute cases are characterized by fever that runs an irregular course and the other usual symptoms that accompany febrile conditions. Tenderness with rigidity and a variable amount of distension is found across the lower abdominal wall. The leucocyte count varies. In my series it ranged from 5,200 to 26,600. The white count was of value in determining the presence of an active inflammation, but it did not help us in locating the focus of the trouble or in identifying the causative micro-organism. Urinary examinations were regularly made. Occasionally we found the situation complicated by a pyuria. General peritoneal involvement will give the characteristic picture of purulent peritonitis, but this form I did not observe, and believe it distinctly rare. The usual manifestation of the severe or malignant types of infection is the formation of firm exudates containing irregular amounts of pus. This condition is resistant to all palliative forms of treatment and almost invariably requires free drainage.

The diagnosis may be easy or difficult. It begins with an inquiry into the history. Attention is given to the mode of onset, whether sudden or insidious, and the association of vaginal discharges, menstrual distress and irregularity. The question of abortion arises, or whether the symptoms came during the puerperium. Abdominal examination seeks to determine the presence of tenderness, rigidity, or tumor formation across the lower abdomen. Pelvic examination ascertains the degree of tenderness with resistance encountered in the vaginal fornices, whether or not the uterus is fixed, or is in an abnormal position, and the presence or absence of a mass formation. The pelvic findings are to be corroborated or enlarged upon by rectal palpation. A small mass, particularly if located high, a hypersensitive patient, or a fat abdomen, may present obstacles that render a positive diagnosis impossible without the use of an anæsthetic.

The differential diagnosis may be pleasing or exasperating. One of the most important differentiations is between an acute appendicitis and an acute salpingitis, because the treatment of the two conditions is distinctly opposite. In the pelvic lesion, we have the history of local distress, the usual exacerbation or occurrence of the symptoms at or about the menstrual period, the bilateral character of abdominal pain and distress, and the important finding of a pelvic tumor. In appendicitis, menstrual disturbances are lacking as prominent elements in the history, vaginal examination reveals little or no tenderness or resistance in the fornices, the abdominal distress is more likely to be unilateral, and the area of greatest tenderness and rigidity is almost certain to be located about a line drawn from the umbilicus to the right anterior superior spinal ileum, rather than low down just above Poupart's ligament. Extra-uterine pregnancy sometimes proves to be a stumbling block. Inasmuch as this affection is most often caused by a salpingitis, the two conditions are frequently associated, and therefore would have so striking a similarity in symptomatology and findings as to make differentiation impossible, nor fortunately is it always absolutely necessary. One of the most important points of difference is an amenorrhea, whether it be of a few days' or a few weeks' duration. I have never observed amenorrhea in an uncomplicated case of salpingitis, and would expect it likely to occur in a tuberculous condition or as a menstrual idiosyncrasy. Errors, like the tares in a wheat field, are bound to creep in. Low-lying intestines may so impinge upon the vagina in conditions of ptosis, as to give to the examining finger the feel of a soft pultaceous tumor, and particularly is this convincing when the patient is hypersensitive. This occurred in one instance. In another instance a lady of Ethiopian descent, whose fat and pendulous abdomen precluded the possibility of ultra-refinement in diagnosis, showed fever, pelvic pain, with tenderness and fixation all across the upper vagina. Operation revealed two normal-appearing Fallopian tubes, with a large uterus sustaining four egg-sized fibroid nodules. Frequently, only one mass is diagnosed, and exploration reveals both sides affected and enlarged. Two cases of extra-uterine pregnancy were partially missed because of insufficient attention to the interpretation of the history of the case. Both of these patients had somewhat long drawn out histories of distress, presented distinct masses, and had short periods of amenorrhea, but this symptom was passed upon in too inconsiderate a manner. Once again I would emphasize the necessity of giving to amenorrhea its full importance as a valuable entity in the diagnosis of ectopic gestation.

The prognosis in general presents three fairly regular possible terminations; first, the active process may subside and the parts undergo a *restituto ad integram;* second, a pus formation may become so extensive, or although of comparative small size it may cause such persistent active symptoms, as to require puncture and drainage; and third, the actue phenomena may subside, either as the result of palliative or operative treatment, leaving the affected parts in a damaged condition, subject later to irregular and disabling exacerbations. There are some special features of prognosis that require attention. The relief in pelvic tuberculous conditions depends not only on the extirpation of the focus, which is generally the tube, but also whether there is other systemic involvement. Post-abortion and puerperal sepsis frequently cause large formations with rebellious symptoms, but the outlook has proved to be good when these masses can be drained through the vagina. If an abdominal incision is required, the prognosis is decidedly grave. Whether the gravity is due to the high location of the exudation; to the added shock of the abdominal incision; to the extensive raw area for fresh infection that the incision opens up; or whether the exudation is but a local manifestation of a systemic infection that cannot be relieved by any operation, is largely a matter of conjecture. The gonococcic cases may be mild and entirely subside, or the actue phenomena disappear, leaving badly damaged structures that require operative attention later on.

Treatment in actue conditions calls for rest and a rather free use of anodynes to relieve pain and suffering and to quiet the affected and contiguous structures. Whether or not any special virtue can be assigned to some particular external application, special drugs or antiseptic douches, is still an open question. There is probably no specific as yet along this line, and the treatment must be largely symptomatic and expectant, with due attention to the comfort and well-being of the patient. The hope of treatment is the subduing of the active process or the limitation of the extent of its operations. In the larger proportion of all cases, this treatment is followed by a subsidence of the symptoms and improvement of the patient's general condition. Recovery is apparently complete in a small number, and incomplete in a much larger number. Chronic types are best treated by surgical methods. This class of patients represent a large proportion of the long drawn-out pelvic sufferers. It is always a practical question of how much relief can be given a woman suffering from a pelvic inflammation by any local or medicinal means.

Of the thirty patients in this series, twenty-six were married and four were single, with ages ranging from seventeen to forty years.

Six refused operation point blank;

Two presented a prohibitive psychosis;

One had pulmonary tuberculosis;

Two were not treated surgically for other reasons, making in all eleven patients who received medical attention only.

The nineteen remaining were treated as follows:

Two by vaginal puncture and drainage;

Two had vaginal puncture first, followed by laparotomy later on, and the fifteen remaining were treated by the abdominal route alone.

Of the nineteen patients operated upon, two died, giving a mortality percentage of 10 per cent, which is a rather high rate as compared with larger statistics. One of the fatal cases had a complicating peritoneal tuberculosis. The other one was suffering from puerperal sepsis with a large mass, for the relief of which an abdominal incision with drainage was done.

In the operative treatment for this infection, there are certain general principles that govern our activities. No patient is subjected to surgical interference during the actue febrile period, if it is possible to bring down the fever by any other method. When, however, the symptoms persist, and the local conditions show an increasing tumor, or severe general symptoms persist with a moderate-sized local swelling, an effort is made to drain away the infectious material through the vaginal route. It is only when all the above efforts fail and the patient shows a condition of increasing toxemia or sepsis, that abdominal drainage is done. In chronic inflammatory disease, the Fallopian tubes are generally the most profoundly involved. Such tubes may be enlarged or irregularly nodular, and the fimbriated end sealed. Their interior may show pus or sanious fluid or aqueous fluid, and invariably they are bound by adhesions to the ovary, the broad ligament or the intestine. In the light of our present knowledge, such tubes are without functionating powers, with the added probability of being the host of various pathogenic organisms. Our practice is to extirpate such a tube. No resecting of tubes is done, because of a doubt as to their functionating value afterward, and the fear of their lighting up or developing another active process. Ovaries are preserved whenever possible. It is surprising to note the comparatively healthy appearance of an ovary after it has been extricated from a mass of dense adhesions. Many such ovaries are cystic, and these can be punctured and scraped, or the cyst excised, the organ repaired, and then left in situ. Ovaries containing pus cavities are, as a rule, excised in toto. Adhesions present obstacles to rapid work, and often it requires considerable patience and technical skill to avoid tearing into an intestine. Panhysterectomy was never done. We could not bring ourselves to believe that because the adnexa was hopelessly involved, the uterus was probably so badly affected as to be without some functionating value. Rather it seemed that with the removal of the palpably diseased structures, the uterus might still prove in some manner to be a serviceable or useful organ.

The situation can be summed up in a general way with this observation: That the great causes of pelvic inflammatory diseases are puerperal, abortion, venereal, tuberculosis, and some as yet unknown. Their existence can cause sterility, also certain acute and dangerous exacerbations and complications, and when of long existence and unrelieved, favors the development of a condition of chronic invalidism. The eradication of this type of disease depends largely upon the readjustment of social ideas, activities and conditions; in other words, it is one of the insistent and omnipresent features of the perplexing problems of our social life.

A STUDY OF THE FATALITY OF CHICKENPOX, MUMPS AND GERMAN MEASLES.

By LINSLY R. WILLIAMS, M.D.,
Deputy Commissioner of Health,
ALBANY, N. Y.

During the winter of 1915 the question was raised by members of the Public Health Council as to whether chickenpox, mumps and German measles should remain as notifiable diseases. In order to ascertain whether or not there was any mortality connected with these diseases, the subject was investigated and it was found that a number of deaths were reported from these three minor diseases. In 1911 and 1912 there were 339 deaths from these diseases reported in England and Wales, as follows:

England and Wales.

	1911	1912
Chickenpox	80	76
Mumps	91	46
German Measles	21	25

In 1911 and 1913 there were 381 deaths from these diseases reported in the United States, as follows:

United States.

	1911	1913
Chickenpox	83	86
Mumps	61	95
German Measles	35	21

It became at once evident that no definite conclusions could be made without a study of the original death certificates. The co-operation of the Federal Bureau of the Census was sought and Mr. R. C. Lappin, Chief Statistician of the Bureau, was kind enough to send out a letter of inquiry to each of the physicians who have signed one of these death certificates. The replies were then studied and a summary made of each reply, which was as follows:

Summary of Doctors' Notes on 46 Cases of Chickenpox.

1. Death due to congestion of brain following smallpox.
2. Death in this case due to broncho-pneumonia.
3. Died of mitral regurgitation. "Contracted chickenpox which probably hastened her end."
4. "I do not believe that chickenpox was either a direct or indirect cause of death."
5. "In this case I believe the death should be credited to broncho-pneumonia."
6. Acute nephritis (contributory chickenpox).
7. Capillary bronchitis cause of this case. Chickenpox was probably a contributory cause.
8. Chickenpox was not a factor in cause of death—merely coincident.
9. Death was due to croupous pneumonia.
10. Enterocolitis. Was chickenpox the cause of death? The doctor answered—"No."
11. "The case referred to within, in my opinion, should have as to classification as to cause of death—nephritis."
12. Death due to thymic tracheostenosis—chickenpox only contributory.
13. Chickenpox was contributory, not the direct cause of death. Cause of death broncho-pneumonia.
14. Patient died of broncho-pneumonia—contributory chickenpox.
15. This child died of a very severe lobar pneumonia that happened to come at the tail end of a mild chickenpox.
16. Cause of death acute nephritis; age eight months; contributory cause chickenpox. "Death should be tabulated as due to C.P."
17. "Child infected with chickenpox in utero——. Death was due primarily to chickenpox."
18. "I consider that the chickenpox was the primary cause of death." Complications—a general sepsis and malignant endocarditis.
19. "I feel assured that the case in question should be classified as chickenpox." Complication—cerebral congestion.
20. "Primary cause of death was chickenpox." Complication—broncho-pneumonia.
21. Chickenpox. Nothing contributory. Age five months.
22. Chickenpox caused the death. Teething and convulsions complicating.
23. Septicæmia following chickenpox.
24. Chickenpox. Age nine days.
25. Death in this case was no doubt due to the infection producing toxæmia, etc. "Chickenpox with consequent infection of two of the vesicles."
26. "Died in convulsions of meningitis, but whether primary or secondary to chickenpox I am at a loss to decide."
27. "Lobar pneumonia was undoubtedly the cause of death."
28. "Remotely, I think, the chickenpox impossible for the other developments—meningitis should be assigned as the cause of death."
29. "Cause of death should read—Infection, with chickenpox as contributory cause."
30. "Overfed — convulsions and death. I doubt if chickenpox alone was responsible."
31. "Vesicles turned black; many subcutaneous and submucous hemorrhages." "A few cases of smallpox in city at time, all of which recovered. Age one year and ten months."
32. "Measles; recovery; then chickenpox followed by convulsions; the strength all used up. Age twenty-two months."
33. "Teething, convulsions, heart failure; chickenpox contributory. Nine months."
34. No physician in attendance. Signed by Registrar as result of parents statements. Registrar states, "Not fair to attribute to chickenpox."

35. Epilepsy, post-epileptic insanity. "Died chiefly from exhaustion—perhaps the toxæmia from chickenpox was a contributory factor."

36. "I feel as though chickenpox was not the cause of death — broncho-pneumonia alone should have been mentioned without any contributory cause."

37. "It could hardly be said that chickenpox caused the death—should be classified under the head of broncho-pneumonia."

38. "Chickenpox and later a nephritis set in. Age fourteen days."

39. "Death was due to the already existing broncho-pneumonia and chickenpox was an intercurrent disease."

40. "Imperforate anus—confluent eruption—high fever; later diagnosis—smallpox."

41. "Death due to asthma during bronchitis—chickenpox may have been contributory."

42. "Died of broncho-pneumonia secondary to chickenpox."

43. "Pneumonia was the cause of death—age twenty-two years."

44. "Cannot attribute death due to chickenpox —broncho-pneumonia was cause of death."

45. "This case should be classified with broncho-pneumonia and not with chickenpox."

46. "Chickenpox was not the cause of death; may have been contributory."

47. "Hemorrhagic in type. Three years."

SUMMARY.

Out of forty-seven deaths, twenty-four, or 51 per cent, were in infants under one year of age; twelve deaths, or 25 per cent, occurred under the age of three months; four cases died of chickenpox uncomplicated; five deaths were due to infections complicating infected vesicles; two cases, from a study of the history, were evidently cases of smallpox; fourteen cases died of acute pulmonary complications, all of whom were under two years of age; three deaths from acute nephritis; two from meningitis, and two from endocarditis. Whether these last three conditions were complicated conditions or intercurrent conditions, it is impossible to say.

CONCLUSIONS.

It seems to be quite conclusive from a study of the reports of the physicians and from a study of the death certificates that chickenpox itself is rarely a cause of death. In children weakened by constitutional disease, death may ensue as a result of the added burden of chickenpox. Pyrogenic infections may occur from infected vesicles. In a number of cases reported as death from chickenpox the death was apparently due to some other cause in which chickenpox was only an intercurrent disease and not the primary cause of death.

MUMPS.

In studying the transcript of the death certificates in which mumps was assigned as the cause of death, a striking feature is noted in the age of death, there being a large number of adults. Eleven out of the sixty-five cases were recorded as being sixty-five years of age and over. In eleven of the cases the cause of death is given as mumps only, and these are given at varying ages from one year up to sixty-six years of age. All but one were children under eight years of age. A large number of the cases are reported as suppurative or complicated with some variety of sepsis. In these twenty cases reported as sepsis or complicated sepsis it is questionable whether the mumps was the primary cause of the sepsis or whether it was an infective parotitis secondary to some oral infection. In two cases, however, certain lesions are given as the primary cause of the sepsis—cellulitis of hands and bilateral. In several instances the mumps was complicated by a definite and recognized complication of these diseases. In two cases acute nephritis. In no instance was orchitis recorded as a complication. The other cases were either preceded by, or intercurrent with, other diseases, such as pulmonary atelectasis, anemia, pneumonia and meningitis. The cases over sixty-five years of age deserve special notice, the secondary cause of death being given as follows: Acute arteriosclerosis, age ninety-two; senility, age ninety-four; arteriosclerosis, age eighty-eight; acute edema of larynx, age seventy-six; pneumonia, age sixty-seven. Of the cases dying of adult life—pneumonia, anemia, lobar pneumonia, epilepsy, pneumonia parotitis.

CONCLUSIONS.

A careful study of the death certificates and a study of the doctors' statements makes it quite evident that although mumps may be a serious disease it is rarely the cause of death. It would seem that in many instances the diagnosis was questionable, and that although the death certificate was signed mumps, the infection of the parotid gland was in many instances very possibly due to an oral infection. This is particularly noticeable in the number of elderly people who are said to have died of mumps. This is borne out by a study of the notes from the doctors' letters.

NOTES MADE FROM DOCTORS' LETTERS.—MUMPS.

1. Was mumps cause of death? "Yes. Arteriosclerosis; age eighty-eight."

2. "The only cause of death I could find was mumps."

3. "The primary cause was mumps, followed by endocarditis."

4. "Death was due without doubt to mumps."

5. "In this case the mumps was the direct cause of death."

6. "Mumps? Yes. Broncho-pneumonia and otitis, as complications."

7. "Mumps caused the death of this child."

8. "Mumps; swelling increased so much that child died suddenly of pressure on the larynx."
9. "Mumps followed by pneumonia."
10. "Convulsions due to septicæmia due to parotitis."
11. "The cause was mumps; contributory broncho-pneumonia."
12. "Child died as a result of mumps."
13. "Septic parotitis and broncho-pneumonia."
14. "Marasmus—mumps—nephritis. Age six months."
15. "Mumps followed by erysipelas was the cause of death."
16. "Should be tabulated as due to mumps."
17. "Mumps followed by adenitis."
18. "Mumps sub-maxillary. Was original infection mumps or streptococcus?"
19. "Mumps with complications that followed."
20. "Mumps with bronchial affection contributory."
21. "Mumps and pneumonia. I hardly think either disease alone would have produced death." (Mumps the earlier disease.)
22. "Abscess on the parotid gland."
23. "Epidemic parotitis. There was metastasis of the testicles which had never descended."
24. "Mumps; died from convulsions." (No other discoverable cause.)
25. "Death was immediately due to œdema of the glottis, induced by a metastatic abscess of parotid gland; also general arteriosclerosis and fractured right hip; age eighty."
26. "Broncho-pneumonia and mumps were both causes of death."
27. "Mumps and septic meningitis. The mumps was the direct cause of the meningitis."
28. "Congenital debility and mumps."
29. "Septicæmia following attack of mumps."
30. "Parotitis (?)."
31. "Bilateral parotitis—laryngeal stenosis was a terminal stage."
32. "Double suppurative parotitis and otitis, complicating a case of dementia precox."
33. "Mumps—measles and pneumonia."
34. "Mumps?"
35. "Suppurative parotitis in a case of epilepsy."
36. "I would say arteriosclerosis killed her." Age ninety-three.
37. "Mumps—double suppurative parotitis."
38. "Meningitis—mumps. I cannot say whether the meningitis was caused by the mumps or not."
39. "Cause of death broncho-pneumonia."
40. "The cause of death was meningitis—mumps a contributory cause."
41. "Mumps—septic adenitis."
42. "Septicæmia—contributory cause mumps."
43. "Infectious parotitis—not mumps."
44. "Parotitis was merely coincident with pneumonia."
45. "A case of infectious parotitis—senility the primary cause."
46. "Mumps? No. Acute dilatation of the heart."
47. "Due to pneumonia complicated with parotitis—not due to mumps."
48. "While there was an inflammation of the parotid gland, I would not tabulate this case as mumps. Cause of death uræmia."
49. "Mumps. Orchitis which became suppurative as result of which patient developed septicæmia and died."
50. "Tubercular condition of jaw and tubercular peritonitis." (Not mumps.)
51. "Pneumonia. Mumps (?) no."
52. "Pyorrhœa, suppurative parotitis, not mumps."
53. "Pulmonary atelectasis. Age one month."
54. "Acute suppurative parotitis." (Says these diseases never cause death.)
55. "Pernicious anemia. I know nothing of the attack of mumps, save what appeared in her history."
56. "You might file it bronchitis. She also had mumps."
57. "Mumps—no. Septicæmia the parotitis symptomatic."
58. "Mumps not the cause of death, but a streptococcus infection."
59. "Chlorosis bleeding at nose, death hastened by mumps."
60. "Exhaustion following septic cellulitis of left arm and hand." (Mumps preceded this condition.)
61. "Enterocolitis—the parotitis was a secondary infection."
62. "Primary condition was broncho-pneumonia; did not have mumps but a suppurative parotitis."
63. "Lobular pneumonia (parotitis contributory)."
64. "Death due to pneumonia not mumps."
65. "Lobar pneumonia not mumps."

German Measles.

Thirteen deaths were reported from German measles in 1913, two of these were given as uncomplicated; seven were complicated with broncho-pneumonia—all children under the age of three years; one case was associated with acute pleurisy, which makes one think of the possibility of pneumonia in this case; one associated with tonsilitis; one with meningitis, and one with mumps; two children were nine years of age; one was seven; one was five and one-half; one four and one-half, and all the others under three years of age. One case nine years of age died from German measles. The doctor wrote "German measles the sole cause of death."

Conclusions.

No definite conclusions can be drawn from so small a series. The question is raised, however, is German measles a sufficient cause for death? Are pulmonary complications frequent?

Without the cordial assistance of Mr. R. C. Lappin, Chief Statistician, Bureau of the Census, Washington, D. C., it would not have been possible to have written this paper. I desire to express my appreciation of his kind assistance.

Notes Made from Doctors' Letters

German Measles.

1. Was death due to German measles? "Yes—contributory, follicular tonsilitis; age four years."
2. "Death due to German measles. Shortly before death a few Loeffler bacilli were found in mucous from upper part of nose."
3. "German measles sole cause for death; age nine years."
4. "Death caused by broncho-pneumonia, a complication of German measles."
5. "Should be classified as German measles. Acute pleurisy—collapsed and died with awful pain."
6. "German measles; contributory cause was broncho-pneumonia."
7. "Parotitis. Contributory cause was German measles."
8. "Death not due to German measles, but to cerebral-meningitis."
9. "Cause of death should be classified under broncho-pneumonia."
10. "Cause of death was catarrhal pneumonia preceded by German measles."
11. "The broncho-pneumonia caused death."
12. "German measles and broncho-pneumonia."
13. "Broncho-pneumonia should be recorded as the cause of death, and German measles as a coincident complication."

Announcement

New York State Medical Library

It is common knowledge throughout the State that a little more than four years ago the New York State Library was wiped out by fire. The restoration of the medical section of that library and of their privileges as borrowers from it, is not so widely known by the members of the medical profession of the State.

The Library has already accumulated 19,600 bound volumes several hundred more than it contained in 1911, in addition to several thousand pamphlets and reprints and much unbound material. About 500 current periodicals are received and more than 200 titles are complete from the beginning. A printed list of these complete sets has recently been issued.

Books are mailed upon request, to licensed physicians, full-time instructors on the faculty of any medical college, members of the house staff of hospitals, registered and certified nurses, and those engaged in pathological research, who offer suitable references. The only expense is the payment of return postage. Books may be retained four weeks; current periodicals two weeks.

Physicians coming from a distance may have material reserved by notifying the Librarian in advance of the subjects desired and date of the prospective visit.

Requests should be addressed to:

Medical Librarian, State Library, Education Building,
Albany, N. Y.

Gifts of books, periodicals and reprints are earnestly solicited. Even single volumes or odd numbers of periodicals may help to complete valuable sets.

Medical Society of the State of New York.

District Branches

Annual Meetings for 1916.

First District Branch—Saturday, October 14th, in Poughkeepsie.

Second District Branch—Date not yet appointed.

Third District Branch—Tuesday, September 26th, in Cobbleskill.

Fourth District Branch—Thursday, August 24th, in Plattsburg.

Fifth District Branch—Wednesday, October 4th, in Watertown.

Sixth District Branch—Tuesday, October 3d, in Cortland.

Seventh District Branch—Thursday, September 28th, in Rochester.

Eighth District Branch—Thursday, September 7th, in Batavia.

Fourth District Branch

Tenth Annual Meeting, Assembly Room, New High School Building, Plattsburg, N. Y.
Thursday, August 24, 1916.

Morning Session, 9.30 A. M.

President's Address, Julius B. Ransom, M.D., Dannemora.

"Perforated Gastric Ulcer," Grant C. Madill, M.D., Ogdensburg.

Discussion, based on four recent cases, Robert S. Macdonald, M.D., Plattsburg.

"The Trudeau School of Tuberculosis—Its Aims and Scope," Edward R. Baldwin, M.D., Saranac Lake.

Luncheon.

Fourth District Branch as guests of the Clinton County Medical Society.

Afternoon Session, 1.30 P. M.

Brief addresses by Martin B. Tinker, M.D., President Medical Society of the State of New York.

Floyd M. Crandall, M.D., Secretary Medical Society State of New York, and other invited guests.

"Some Experiences with Wounds of Modern Warfare," with lantern slide pictures, Lyman G. Barton, Jr., M.D., Willsboro.

"Military Training Camps," Major Wallace DeWitt, M. C.

At the conclusion of the above scientific program, the society will adjourn to the Military Training Camps, through which they will be conducted by Lieutenants Leo F. Schiff, M.D. and T. A. Rogers, M.D., of the Medical Reserve Corps, in service at the Plattsburg military post and their aides.

Opportunity will be afforded to visit local, historic and scenic beauties of this section, such as monument of Samuel de Champlain, Ausable Chasm, etc., etc.

A special committee of ladies will see to the entertainment of the wives of visiting physicians and take them for a cruise through historic Cumberland Bay, and the northern part of Lake Champlain, a most delightful trip, during which luncheon will be served. This trip is open only to ladies.

Owing to the large number of visitors to Plattsburg, all persons wishing to remain longer than for the day would do well to address the chairman of the Committee of Arrangements, Robert S. Macdonald, M.D., 135 Margaret Street, Plattsburg, N. Y., who will do all possible in the matter of finding accommodations for those wishing to remain over night.

No pains will be spared by the committee of arrangements to make this a most delightful and profitable day's stay in historic Plattsburg.

Eighth District Branch

Annual Meeting, Odd Fellows' Hall, Batavia, N. Y.

Thursday, September 7, 1916.

The program will be essentially a clinical one. The authoritative papers are to be broadly exemplified in so far as possible by the presentation by members of typical and atypical cases with brief histories and treatment. General discussion of subject, cases and treatment will be made a feature. The projection lantern will be used to profusely illustrate the subjects. The meeting will be opened for routine business at 9.30 A. M., adjourn for lunch at 12.30 P. M. and reconvene at 2.00 P. M.

"Causes of Goitre," Martin B. Tinker, M.D., Ithaca, President of the Medical Society of the State of New York.

Discussion to be opened by John M. Swan, M.D., Rochester; George F. Cott, M.D., Buffalo, and William D. Johnson, M.D., Batavia.

"Cancer of the Rectum," William Francis Campbell, M.D., Brooklyn, Past President of the Medical Society of the State of New York.

Discussion to be opened by Descum C. McKenney, M.D., Buffalo, William R. Thomson, M.D., Warsaw, and Harvey R. Gaylord, Buffalo.

"Gonorrheal Salpingitis," Henry D. Furniss, M.D., New York City.

Discussion to be opened by James E. King, M.D., Buffalo; Ross G. Loop, M.D., Elmira, and W. Mortimer Brown, M.D., Rochester.

"Supra-Pubic Prostatectomy," William E. Lower, M.D., Cleveland O.

Discussion to be opened by George W. Cottis, M.D., Jamestown, and Thomas H. McKee, M.D., Buffalo.

"Pituitary Body and Pituitarism," James A. Gibson, M.D., Buffalo.

Discussion to be opened by G. Kirby Collier, M.D., Sonyea.

"Operative Obstetrics," Irving W. Potter, M.D., Buffalo.

Discussion to be opened by Peter W. van Peyma, M.D., Buffalo, and Earl P. Lothrop, M.D., Buffalo.

"Poliomyelitis," Edward A. Sharp, M.D., Buffalo.

Discussion to be opened by James W. Putnam, M.D., Buffalo, and Dewitt H. Sherman, M.D., Buffalo.

"Cerebro-Spinal Syphilis," Grover W. Wende, M.D., Buffalo, Past President of the Medical Society of the State of New York.

Discussion to be opened by Lesser Kauffmann, M.D., Buffalo, and Arthur W. Hurd, M.D., Buffalo.

Luncheon will be served in the basement of the hall under the care of the Medical Society of the County of Genesee.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

A Text-Book of Pathology. By William G. MacCallum, M.D., Professor of Pathology in the College of Physicians and Surgeons, Columbia University, New York City. Octavo volume of 1085 pages with 575 original illustrations. Philadelphia and London, W. B. Saunders Company, 1916. Cloth, $7.50 net.

Examination of the Urine and Other Clinical Side-Room Methods. By Andrew Fergus Hewat, M.B., Ch.B., M.R.C.P., Ed. Tutor in Clinical Medicine, University of Edinburgh; Lecturer Edinburgh Post Graduate Vacation Course, 5th Edition. New York, Paul B. Hoeber, 67 East 59th Street. Price, $1.00.

Cerebellar Abscess, Its Etiology, Pathology, Diagnosis and Treatment including Anatomy and Physiology of the Cerebellum by Isidore Friesner, M.D., Adj. Prof. Otology and Asst. Aural Surgeon, Manhattan Eye, Ear and Throat Hosp., New York and Alfred Braun, M.D., F.A.C.S., Asst. Aural Surgeon, Manhattan Eye, Ear and Throat Hosp., Adj. Prof. Laryngology, N. Y. Polyclinic. 10 full page plates and 16 illustrations. New York, Paul B. Hoeber, 67 East 59th Street, 1916. Price, $2.50.

Ultra-Voilet Light by means of the Alpine Sun Lamp, Treatment and Indications by Hugo Bach, M.D., Bad Elster, Saxony, Germany. New York, Paul B. Hoeber, 67 East 59th Street, 1916. Price, $1.00.

Modern Medicine and Some Modern Remedies. Practical Notes for the General Practitioner, by Thomas Bodley Scott, Author of "The Road to a Healthy Old Age," with a preface by Sir Lauder Brunton, Bart., F.R.S. Paul B. Hoeber, 67 East 59th Street, New York, 1916. Price, $1.50.

The National Formulary, Fourth Edition. By Authority of the American Pharmaceutical Association. Prepared by the Committee on National Formulary of the American Pharmaceutical Association Official from September 1, 1916. Published by the American Pharmaceutical Association, 1916.

Practical Massage and Corrective Exercises, by Hartvig Nissen. Revised and Enlarged Edition of the Author's "Practical Massage in Twenty Lessons" with many additions. 68 original illustrations, including several full page half-tone plates. F. A. Davis Co., Philadelphia. English Depot, Stanley Phillips, London, 1916. Price, $1.50 net.

Hay Fever, Its Prevention and Cure, by William C. Hollopeter, M.D. for twenty-five years, Professor of Pediatrics in the Medico-Chirurgical College of Philadelphia. Cloth, 348 pages. Price, $1.25 net; postage, 12c extra. Funk & Wagnalls Company, Publishers, New York.

Milk and Its Hygienic Relations, by Janet E. Lane-Claypon, M.D., D.Sc. (Lond.) Asst. Medical Inspector under the local Government Board, published under the direction of the Medical Research Committee (National Health Insurance) with 8 plates and diagrams in the text. Longmans, Green & Co., London, Eng., and 4th Ave. and 30th Street, N. Y. Bombay, Calcutta and Madras. 1916. All rights reserved. Price, $2.50 net.

A Text-Book of Practical Gynecology for Practitioners and Students, by D. Todd Gilliam, M.D., Emeritus Professor Gynecology Ohio State University, College of Medicine, Gynecologist St. Anthony and St. Francis' Hospitals, Fellow American Association of Obstetricians and Gynecologists, and Earl M. Gilliam, M.D,. Professor Diseases of Women, Ohio State University, College of Medicine, 5th revised edition. 352 engravings, colored frontispiece and 13 full-page, half-tone plates. F. A. Davis Co., Philadelphia. English Depot, Stanley Phillips, London, 1916. Price, $5.00 net.

Deaths.

James B. Drake, M.D., Norwich, died July 12, 1916.

Thomas A. Kenefick, M.D., New York City, died July 30, 1916.

William O. Majilton, M.D., New York City, died July, 1916.

Ellis B. Perry, M.D., New York City, died July 31, 1916.

John F. W. Whitbeck, M.D., Rochester, died July 3, 1916.

Julius Hayden Woodward, M.D., New York City, died July 2, 1916.

NEW YORK STATE JOURNAL OF MEDICINE

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Vol. XVI. SEPTEMBER, 1916 No. 9

ORIGINAL ARTICLES

GYNECOLOGIC SURGERY IN HYSTERO-NEURASTHENIC PATIENTS.*

By HARRY S. CROSSEN, M.D.,
ST. LOUIS, MO.

IN the case of each hysterical or neurasthenic patient presenting pelvic symptoms, three questions arise in connection with possible operative treatment.

I. Is operation indicated?

II. If indicated, what is the preferable time for operation—before or after the course of neurologic treatment?

III. When operating, should *more* conservatism or *less* conservatism be practiced than in an individual with a normal nervous system?

Perhaps the best way to bring these points before you and excite discussion of them, is to state briefly my own convictions and practice with the reasons therefor. I can speak only of principles. The time is necessarily too limited to cite individual cases or even to consider principles in much detail. If, on account of this necessary limitation, some statements appear dogmatic, rest assured no dogmatism is intended—on the contrary, I am seeking information.

I. Is operation indicated?

There are certain classes of cases in which operation is indicated without question, for example, those cases in which the pelvic lesion is seriously depressing the general health, through blood-loss or sepsis or local pain clearly due to the lesion. In such cases the lesion should, of course, be removed, irrespective of the co-existing nervous disease.

There are other cases, however, in which the connection between the pelvic lesion and the serious symptoms is not so clear. These doubtful cases may be grouped into two classes. One class (a) is composed of those cases in which the principal symptom is pelvic pain, constant or periodic, without a palpable local lesion of sufficient extent to satisfactorily account for the pain. The other class (b) includes those cases in which the principal symptoms are extra-pelvic but are supposed to be dependent, in whole or in part, on some intra-pelvic lesion.

I know of no easy road to a decision in these doubtful cases. Each case must be carefully studied, taking into consideration the history of the trouble, the pelvic findings, the extra-pelvic findings and the effect of treatment. Experience with the different types of cases is, of course, of great importance, but even that may fail to guide unerringly. There is such a marked individuality in these patients that the same treatment in seemingly identical cases may produce wholly different results. The treatment is to some extent tentative and, as far as the individual patient is concerned, experimental. Consequently, it is well to be conservative, beginning with the least severe measures which may bring success, and advancing to the more radical measures, as such advance is justified by the failure of the previous treatment.

With this preliminary orientation, let us now consider some details in the handling of the two classes of doubtful cases.

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a. Localized pelvic pain without palpable lesion to account for it.

Pain in any part of the pelvis may be due to several different causes and the various causes must be traced down as far as practicable in each case. For example, pain across the sacrum may be due to a new growth, to an inflammatory mass in the pelvis, to functional or postural congestion in the pelvis, to dragging of the pelvic organs on their supports, to sacroiliac disease, to rheumatism, to neuritis, to neuralgia, to faculty balance, or to a sprain or bruise. Likewise, in other portions of the pelvis, pain may be due to a variety of causes. The physician must determine as far as practicable what cause is operative in the patient before him. To narrow the inquiry, so as to come at once to the important features, let us take, for example, pain that is localized definitely in the ovary. This is a form in which the problem is very frequently presented to the gynecologist and it may well be taken as a type of the class of cases now being considered. The ovary on the affected side is hypersensitive on palpation. There may or may not be fixation. There may or may not be enlargement. But the palpable changes, if any, in the ovary are not sufficient to wholly account for the pain. That is, they are no more than are often found in patients without particular pain. The definitely localized ovarian pain may be constant or periodic. Usually it is periodic and occurs at the menstrual time. I refer not to ordinary obstructive or congestive dysmenorrhœa, but to an intense pain definitely localized in the ovary of one side and of such character and duration that the patient is completely undone by it and can scarcely recover from an attack before another one comes. In deciding the question of operation in such a case we must consider the possible factors in the causation of the pain and the relative importance of each in the particular patient. There may be a definite pathological process in the ovary, the most common being a chronic nutritive disturbance, leading to cellular infiltration and contraction and cystic formation. There may be a general neurasthenic condition and hypersensitiveness of nerves, this being simply more marked about the affected ovary than elsewhere. The pain may be a local manifestation of well marked hysteria. There may be a definite neuritis, such as is found elsewhere in some cases of persistent pain.

If the patient is markedly neurasthenic, so much so that the pelvic pain is a matter of secondary importance in the clinical picture, operation is contraindicated until the treatment for neurasthenia has been given a thorough trial. Likewise, if the patient is a marked hysteric, the presumption is that the pelvic pain is simply an hysterical manifestation, and treatment accordingly is indicated. On the other hand, if the patient presents no more instability of the nervous system than might be accounted for by the pain, which has constantly recurred in spite of ordinary measures (rest, local heat, laxatives, sedatives and antineuralgic remedies), then operation for removal of the affected ovary and exploration of the pelvis is indicated. Again, in a marked neurasthenic or hysteric, if a prolonged course of treatment in competent hands fails to give relief from the serious pelvic pain, operation is indicated.

b. Extra-pelvic symptoms supposed to be dependent, in whole or in part, on some intra-pelvic lesion. The decision as to what extent a pelvic lesion may be held responsible for extra-pelvic symptoms present in a given case, will depend to a considerable extent on the physician's views in regard to "reflex symptoms" in general and "pelvic reflexes" in particular. My own view of the matter, and the rule that guides me as to the choice of operative treatment in these cases, has been expressed in a previous article as follows:

"The removal of the pelvic lesion will relieve the general nervous disturbance only in so far as that nervous disturbance is due to malnutrition or to general irritation of the nervous system dependent on the local lesion. That is, I am not ready to admit any specific influence by way of the nerves, of a pelvic lesion over a like lesion in any other of the deep-seated organs. Recent investigations have shown that many of the organs of the body give into the blood specific substances having definite general and local effects, and the ovary belongs to this group. But this product is physiological and not due to a lesion. Furthermore, it is carried by the blood and not by way of the nerves.

"Consequently, when asked how far the removal of a pelvic lesion will benefit a patient with some general nervous disease, I answer, 'As far as that removal will improve nutrition and allay general irritation.' That is as far as I think we can safely go in these cases at present. It is a fact that in some cases the results from operation apparently go beyond this, and we may hope for these added results. But they are erratic, unreliable, obtained in some cases and not in others, and we can not justly hold them out as an indication for operation."

II. When operation is indicated, what is the preferable time for it—before or after the course of neurologic treatment?

In those cases in which it is evident that operation will be necessary sooner or later, I think the preferable plan is to do the operation first. The neurologic treatment may be begun shortly after the operation and continued during the patient's convalescence in the hospital. The stay in the hospital is to be prolonged as needed to give the patient a good start so that the treatment may be continued effectively at home.

If the pelvic lesion is of such character that its influence in the causation of the troublesome symptoms is very questionable, then the course of neurologic treatment should come first. In such a case, the course of neurologic treatment, in competent hands, may relieve the patient of all serious symptoms, thus rendering operation unnecessary.

In this connection, I would emphasize the phrase "in competent hands." According to my observation, a large part of the treatment employed for neurasthenia and hysteria in women is wholly inadequate. It scarcely touches the margin of the serious problem of relieving the patient of her disability. In many cases the physician seems to feel that a diagnosis of neurasthenia and especially of hysteria, relieves him of nearly all therapeutic responsibility. His view of the matter seems to be that the trouble being "nervous," the patient is somehow responsible for it and can cure it herself if she will. As a matter of fact, an established diagnosis of neurasthenia or hysteria should be proof positive to the physician that he is facing a hard proposition. To relieve such a patient often requires a therapeutic skill and adaptation and originality and judgment and vigor that is rare in the profession. The removal of a tumor or excision of an inflammatory mass is a comparatively small matter beside it. The treatment required for a neurasthenic or hysteric is as positive and vigorous and definite as that required for tuberculosis or for a broken arm. It is, of course, of a different character and must be applied with an adequate understanding of the complex problems of the nervous system and with a skillful adaptation to the special conditions present in the individual patient. In the cases requiring a trial of non-operative treatment, it is not sufficient to give the patient a course of ordinary tonics, interspersed with sedatives to relieve the troublesome symptoms. A thorough trial of neurologic treatment means the instituting of a carefully planned campaign, aimed at definite accomplishments at different stages. The planning and the execution can, as a rule, be successfully carried out only by one who has specially qualified himself for the work, either as a specialist in nervous diseases or as a general practitioner who has given the time and labor necessary to a practical understanding of the complex subject. My own practice is to refer all such patients to a neurologist, who is to assume full charge of the neurologic treatment.

III. When operating, should more conservatism or less conservatism be practiced than in an individual with a normal nervous system?

This question has troubled me considerably in practice. These patients in which the nervous system is unstable, are not favorable subjects for conservative surgery. A slightly damaged uterus or tube or ovary, which in the ordinary individual would cause no symptoms, may in these hypersensitive patients prove a source of chronic invalidism. On the other hand, such patients are equally unfavorable for radical operative work. It is in just such unstable patients that the removal of both ovaries occasionally causes a complete breakdown in the nervous system—a breakdown that in some cases proves irremediable. The erratic quality of the symptoms and of the patient's reactions in general, pass over into the results of the operative work. The result after either a conservative or radical operation may be better or worse than in an individual with a normal nervous system. The result is rarely an ordinary one—it is extremely good or very bad. It is the uncertainty in both directions that makes the prognosis so difficult and caution so necessary.

For the present, my rule of practice, when operating in the case of a patient with an unstable nervous system, is as follows: "Radicalism until the last ovary is reached, and then great conservatism." A damaged ovary or tube or uterus had better be removed, for in the hypersensitive pelvis it is very likely to give persistent trouble. On the other hand, the instability of the nervous system makes the complete removal of the ovarian influence exceptionally hazardous, consequently every effort should be made to preserve an ovary or a functionating part of an ovary. The rule as to radicalism should of course be applied with due exceptions in special cases, as where the patient is very young or where she has strong desires in regard to the preservation of child-bearing or the preservation of menstruation. Again, in those very exceptional cases in which the menstrual suffering is so severe and so prolonged and resistant to treatment that elimination of the recurring menstruation is indicated, I think the desired result is accomplished with less hazard to the patient's nervous balance by hysterectomy with preservation of an ovary than by double oophorectomy.

THE GENITAL REFLEXES AND THEIR ROLE IN THE PRODUCTION OF SYMPTOMS ARISING IN THE PELVIS.*

By RICHARD R. SMITH, M.D.,
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WE have arrived at a time in medicine when we are no longer satisfied simply with the identification of the pathological changes that have taken place in an organ, and an estimate of their extent, but we desire to know how that organ is performing its functions and what its limitations are in that respect. The study of disease from this standpoint is proving to be as interesting as the pathology itself, and is leading to an investigation not only of the disturbed functions themselves but to the normal physiological activities that must, of course, form the basis for such a study. We are witnessing then a renewed interest in physiology by the clinician, and this is being extended to every organ of the body. There is an awakening interest in the pelvic organs observed from this standpoint which bids fair to advance the science of gynæcology far beyond its present status. This fresh regard for the physiology of these organs brings us to a fuller realization of the fact (which I am afraid has sometimes been a little hazy in our minds) that perfect function depends not only upon the integrity of the parts, but as well upon the normal activity of certain ductless glands, and the proper behavior of the nervous system.

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As surgeons we are constantly seeing disturbed function resulting from morbid anatomy —the infections, the neoplasms, the injuries of child birth, and congenital anomalies. We have not interested ourselves enough in disturbances due to other causes, and have not infrequently exhibited confusion in regard to them. It will be the work of the future to study these other causes and their results, and to differentiate them from those due to the processes just mentioned.

At present we recognize first an illy defined group due to the anomalies of the ductless glands—the menorrhagia associated with hypothyroidism, for example, a field in itself rich in possibilities for investigation. Secondly, we recognize that certain disturbances of function arise from constitutional conditions—the amenorrhœa of tuberculosis, for example; and, again, that certain of them come from the nervous system. It is to the latter group that I wish to call your attention today.

In studying the influence of the nervous system upon the pelvic organs, it is necessary that we have some knowledge of the reflexes, understand their close dependence upon mental processes, and know a few facts in regard to the mental processes themselves in order to grasp the meaning of certain commonly repeated pelvic symptoms. To study these reflexes will help us to understand the neuroses, and is the practical purpose of this paper. In the study leading up to the presentation of this paper I have been greatly helped by, and wish to give full credit to the work of Walthard,* of Frankfort, whose excellent articles have furnished most valuable contributions to the gynæcology of the last decade.

Let us begin by dividing the pelvic reflexes into two groups: (1) Those belonging to the spinal and sympathetic system, and (2) those belonging to the higher centers in the cerebrum. The spinal and sympathetic systems constitute the primitive nervous equipment of the lower vertebrates and still lower forms of life. They are entirely automatic, comparatively simple in their responses, and altogether unconscious. A cerebrum and the possession of a consciousness is reserved for the higher animals and advances in complexity as we ascend in the scale. The lower reflexes Walthard designates as *subcortical,* the latter as *psychic* reflexes. Careful distinction at once of these two groups makes matters less confusing.

The subcortical reflexes lie in the spine, the medulla oblongata, the cerebellum, the corpora quadragemina, in certain ganglia of the thalamus, and the whole sympathetic nervous system. The first important fact to note is that the subcortical reflexes are quite able to maintain normally all the functions of the generative organs, as they do in the lower animals without brains, in animals that have been decerebrated, and in women with transverse lesions of the cord where all connections with the higher centers have been severed. Such women menstruate normally, they conceive, go through pregnancy, and have normal labors.

We may divide the subcortical reflexes into two groups: (1) A spinal group, and (2) a sympathetic group. First, the spinal. If we irritate the skin of the lower half of the vulva or the mucous membrane of the vestibulum as high as two cms. into the vagina sufficiently, afferent impulses are conveyed by means of the nervus pudendus communis to the spinal cord (to be more exact, to the fourth and fifth segment of the sacral cord) and directly back again over the same nerve trunk. The nerve supplies the striped muscle fibres controlling the pelvic outlet, and we obtain a contraction of the sphincter ani, the levator, and the perineal muscles, the contractor cunni, and the sphincter of the bladder. One may note this by the drawing in of the anal opening, and the shortening and contraction of the perineum toward the symphysis, closing the outlet. This reflex is evidently purely protective in character, and designed to guard the pelvic organs against harm. Both its receptor and its motor mechanism lie within the pelvis.

Spinal subcortical reflexes, with receptor mechanism *in* and motor mechanism *without* the pelvis are two in number—the hypogastric and the abdominal. (1) The hypogastric: Stimulation of the skin of the mons veneris or of the anterior half of the vulva send impulses to the first and second lumbar segment, causing contraction of the muscles of the lower abdomen. (2) Abdominal reflexes: Stimulation of the upper two-thirds of the vagina produces contraction of the abdominal muscles, raising intra-abdominal pressure. The purpose of the hypogastric reflex would seem to be protective, of the abdominal to assist in labor. It is to be remembered of these three subcortial spinal reflexes that their motor mechanism ends in striped muscle only.

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* Walthard, M. Der Einfluss des Nervensystems auf die Funktionen der Weiblichen Genitalien. Praktische Ergebnisse der Geburtshülfe und Gynakologie, 1909-10, Band 1-2, zeite 245.

The sympathetic reflexes. The other subcortical reflexes—those controlling the unstriped muscularis of the pelvic organs and the secretion of the glands—belong to the sympathetic system, and in proof of their independence proceed when connection with the brain and spinal cord is severed. Stimulation of the perimetrium and the endometrium of the body of the uterus leads to a contraction and retraction of the uterine musculature, and at the same time to a relaxation of its antagonists—the internal sphincter, a matter easily demonstrated by the examining finger during uterine contraction. Stimulation of the cervical canal leads to a contraction of the internal sphincter, and at the same time to a relaxation of its antagonists—the body musculature, a fact easily demonstrated by sounding the uterus or by the examining finger. These two subcortical sympathetic reflexes work antagonistically. Their purpose in labor or in expelling menstrual clots or other foreign material is clear. Stimulation of the mucous lining of the cervix and body, if persisted in long enough, likewise produces hypersecretion of their mucous glands. Stimulation of the upper two-thirds of the vaginal walls brings about contraction of the musculature of the vagina. Skin stimulation of the outer genitals and of the introitus, if it endures long enough, produces contraction of the unstriped musculature at the entrance of the vagina and the tunica propria of the Bartholinian glands, and consequently a secretion from the latter. Erection of the corpora cavernosa in dogs may be produced in the same way.

We also have subcortical sympathetic reflexes whose receptors are outside of the generative organs. They lie in the gastro-intestinal and in the urinary tract. Stimuli which cause powerful contraction of the gastro-intestinal canal or bladder cause at the same time intense contractions of the uterus. Dilatation of either gastro-intestinal tract or bladder hinders movements of the uterus. Nursing a child at the breast also may cause uterine contraction, and might be mentioned as another reflex belonging to this group. Outside of these well-defined reflexes, stimulation in various parts of the body produces slight fleeting contractions of the uterus. It would seem that they were produced through the vasomotor system. Such impulses pass to the medulla oblongata, to the vasomotor centers, and probably produce contractions of the uterus by producing a secondary anæmia in it.

As an indirect reflex, relaxation of the abdominal muscles in pregnancy has been noted as soon as the abdomen increases in size, due to the growing uterus. There may be other reflexes belonging to the subcortical group. Turgessence of the turbinates is commonly observed during menstruation, and dysmenorrhœa has been treated by reducing this turgessence. Whether this is a true subcortical reflex or a psychic one, or neither, may still be debated.

We now turn to a new chapter. Under the term psychic reflexes we include all of those activities in our conscious life in which sensory stimuli are received, acted upon, and returned as motor stimuli to the body. As manifold as our mental processes are, a large part of them at least may be included under this simple conception. The two principal components of these psychic reflexes are (1) perception, and (2) conscious motor function. They began phylogenetically with the first appearance of a brain in the animal. Here was introduced an entirely new element. As we ascend in the animal scale and the brain becomes more complex, we find this power of perceiving becoming keener, and the ability to receive impressions from the primitive nervous system greater. The conveyance, both sensory and motor, of these impulses is physiological, and the psychological begins first after the impulses have reached the cortex, and ceases when they leave it.

The first distinction that we make between these psychic reflexes and the subcortical ones is that after their reception into the centers of exchange they do not pass directly into motor activities—the thing is by no means so simple nor uniform. Perceptions vary first with the quantity of the stimuli that reach the cortex. For example, ordinary contractions of heart and gastro-intestinal canal we do not perceive. It is only when these processes are exaggerated (as, for instance, in palpitation of the heart) that they reach our consciousness. Our perceptions beside this depend upon the condition of the mechanism that receive the stimuli. Many things tend to increase its sensitiveness—for example, fatigue, intellectual work, and various drugs (of this more later), but the main factor in determining the degree in which the received stimuli are noted and acted upon depends upon previous conceptions or mental pictures which combine at once with the received stimulus. These conceptions or mental pictures result from the sum of our experience and differ in each one of us. They are dependent upon our emotional make-up, our way of thinking, upon hereditary mental endowment and education.

They determine more than anything else the manner in which the reflex shall be completed. According to the influence of these mental pictures upon our perceptions, the sensory stimulus passes at once, later, or not at all, to its conscious motor completion.

Sensory impulses which arise in the female genitalia pass either through the spinal system or the sympathetic. Through the spinal system (1) are received impressions of touch, pain, and of heat and cold that are received on the vulva and in the vagina to a point two or three cms. above the introitus. Also the woman perceives active and passive movements of the outer genitalia. In the upper part of the vagina pressure and pain sense alone are retained, and these to a comparatively small degree—the sense for heat and cold not at all. Through the sympathetic system (2) movements of the uterus, and a distinguishing of them from those of the bladder and intestines are perceived. Also pain in the uterus, ovaries and tubes. It is still an open question whether these sensory fibres which pass through the sympathetic system do not belong to the spinal system, the fibres being simply mixed with those of the former.

As to motor activities. Through the spinal system (1) are controlled the striped voluntary muscles of the pelvic outlet. They are directly under the will in distinction from the motor functions of the sympathetic, which are controlled only by conceived ideas or sensation. They consciously close the bladder, vagina and anus. At the same time we obtain a relaxation of their antagonists—the musculature of the abdominal wall that under contraction raises abdominal pressure. Through the spinal centers also proceed impulses that control the musculature of the abdominal wall, and when these are set in motion the musculature of the outlet automatically relaxes. If the stimulus is great enough, or its effect for other reasons upon the perceptions a deeper one, the reaction includes other and more remote muscles, and violent movements result. For example, roughness in examination or the approach of an object naturally feared by the patient may cause not only a contraction of the muscles of the outlet, but a rolling in and adduction of the thighs, a bending of the spine, and the patient withdraws the buttocks to the middle of the table.

Through the sympathetic system (2) proceed conscious motor impulses, but these are not under direct control of the will as are the spinal—they are governed entirely by mental conceptions or sensations as already stated. A sensation of the bladder, rectum or vagina being full brings about a contraction of the corresponding musculature that empties them. Libidinous ideas bring about contraction of the unstriped musculature of the introitus, secretions from the Bartholinian glands, and a swelling of the corpora cavernosa. The purpose of these sympathetic reflexes is clear. Those not so clear are blushing under embarassment, violent movements of the intestines and bladder under severe fright, sweating under the influence of fear, et cetera. I have a patient—a public speaker—who menstruates slightly whenever she goes to the platform, and who did not menstruate for several months after the death of a near relative.

In what way are the psychic sensory and motor functions connected? Sensory impulses ordinarily end in a conscious motor function that has a simple purpose, and are in accordance with the corresponding subcortical reflex which is thereby enhanced and strengthened. These reflexes are influenced to a very great extent by conditions in the psychic centers, as already stated. More than this, motor impulses, both spinal and sympathetic, arise in the cortex without being initiated directly by a sensory impulse.

A word as to the co-relation between the subcortical and the psychic reflexes. They generally act in unison. A painful irritation of the vaginal introitus will cause a subcortical contraction of the musculature of the outlet, and at the same time through the psychic centers a similar contraction. Where the two come in conflict the psychic reflex always suppresses the subcortical. For example, a voluntary contraction of the abdominal wall, with its accompanying relaxation of the pelvic outlet, altogether suppresses the subcortical reflex of the latter. Psychic reflexes often conflict with each other—the strongest then controls the situation. The action of the bladder illustrates this well. When the bladder has reached a certain degree of fullness, through the subcortical reflex a contraction of the detrusor vesicæ is produced, with an attempt to empty the bladder. This movement is conveyed to the consciousness, the individual voluntarily closes the sphincter, which submerges the subcortical reflex, and the detrusor relaxes. When the bladder becomes greatly filled pain is produced, and with it a conception of emptying the bladder. This sensation suppresses in the consciousness the competing conception of bladder retention, and in turn both psychic and subcortical join in a rapid evacuation.

It would be out of the question in a brief paper to state the many uses to which this little knowledge of the reflexes may be applied. In the symptomatology of a large share of the gynæcological patients that come to us their behavior, normal or otherwise, is expressed. Especially in the estimate of the neurological patients that come to us with pelvic symptoms can we use this knowledge in substantiating our diagnosis and gaining a better understanding of our patient. In the influence of a neurosis upon the behavior of these reflexes we may note two factors—a *direct* and an *indirect* one.

The behavior of the psychic reflexes are dependent above everything else upon the previous conceptions which join with the sensory impulses in determining the result. It is the abnormal way of thinking of the individual, and the distorted and irrational ideas which result, that in the presence oftentimes of a perfectly normal pelvis or one in which the pathological changes are so slight as to be of no possible consequence in determining the symptoms, that we get marked disturbances of function, and it is the misinterpretation of these disturbances that has led to a large amount of useless and harmful surgery in a field in which surgery finds a most happy application when wisely employed. Into the mental state of patients suffering from the neuroses enter to a large extent disturbed emotions.

As an indirect influence, and one which is almost equally as important, are all those factors which tend to increase the sensitiveness of the individual to emotional disturbances. We may name certain drugs—strychnine, caffeine, or tobacco, or the products of the ductless glands as in hyperthyroidism, or the activity of the ovary during menstruation. We may also mention fatigue, one of the most powerful of all influences, and we may speak of pain, but above all we must dwell upon the manner of thinking of the psychoneurotic individual and the emotional distress to which she is subject. Their way of thinking, their fears and anxieties produce tremendous fatigue, and so it is that we see many of these patients suffering from the most profound exhaustion under physical conditions that would seem to be conducive to normal life.

These indirect causes of disturbed function do not act alike in the same individual, either in degree or in manner, nor do they have exactly the same effect upon any two individuals—they, nevertheless, are important though indirect elements in disturbing pelvic functions. The direct cause is the mental make-up of the individual.

Discussion.

Dr. LeRoy Broun, New York City: It looks as if it is simply a question of summing up what both of the authors have said. Unquestionably, we will agree with all of the things said by both Dr. Smith and Dr. Crossen—in other words, the sum total being that surgical methods or treatment will improve just in so far as you can improve the physical health of the patient. Surgery can have no direct bearing upon a pre-existing nervous mental state. The sum of both papers is how to treat such nervous patients presenting themselves. If there are no local findings, they are patients for the nerve specialist. If there is a distinct local finding, from a gynecological standpoint, we should treat them locally or surgically on the basis of improving their general physical health, and in addition they should be in the hands of the nerve specialist. I believe it is generally considered that there are only a few steps between the hysterical patient, the neuresthenic patient and the manic depressive type of insanity. There is simply a gradation. Whatever affects the general health of these patients increases their nervous status. Therefore, it becomes our duty, simply as gynecologists and as surgeons that if any such condition affects their general health, it should be remedied, not with any promise that the patient will be cured, but to remove any depressing cause which accentuates their constitutional condition.

I am hardly able or prepared to discuss these papers from the nervous standpoint. I would rather leave that to Dr. Gibson, who has had a special training in the wards of a psychopathic hospital. My experience of some years ago when operating at the Manhattan State Hospital, and where we tried to carefully connect the statistics and study them, was that in line with improving the general physical health of the patients, out of five hundred operations or less, not quite five hundred, there were thirty-two patients whose recovery apparently was very much added to by the means of the surgical work done, that is, that they were so improved physically that their discharge from the hospital as temporarily cured, not permanently cured, was facilitated and hastened. In some instances, this change was marked. I have one in mind where one patient had been under treatment for four months under the usual hydro-therapeutic and constitutional treatment without any improvement. She was a manic depressive patient.

She was given an ordinary pelvic operation for a lacerated cervix and lacerated perineum of a severe type. Her improvement dated from the time the patient was taken out of bed following this operation, and she was soon discharged from the hospital.

Another patient had been under treatment for eleven months. Her improvement after an operation was rapid, and in a short while she was discharged.

Another was that of an operation for hernia. In these cases, there is no claim whatever that there was any direct bearing on the mental state, but it simply improved the physical condition of the patient and thereby she was more receptive to the ordinary treatment.

There is no belief that any operation upon the pelvis has any direct bearing upon the pre-existing mental state, whether of a neurasthenic, of a hysterical patient, or of one of the manic depressive type.

There are certain classes of cases in which their pre-existing mental unbalanced condition is very much accentuated by the existing physical state. That is very strikingly illustrated in the following cases: One patient when presented was wildly disturbed. She had to be held in bed by four or five nurses. She had a very much distended abdomen, but nothing much could be made of it, yet there was apparently more marked distension on the right side than on the left. An exploratory incision was made. A large quantity of pus was evacuated from an appendical abscess. The patient at once began to quiet down, and her intense period of excitement all passed. She was very much more amenable to treatment and became a quiet patient. I simply give you this as an illustration of how at times these conditions simply accentuate a pre-existing nervous and mental state.

Dr. Gordon Gibson, Brooklyn: Dr. Smith has covered the subject of the genital reflexes so well that there is little to add, however, it must be remembered that the response to irritation takes place simultaneously in three systems, the psychic, the sensory motor and the autonomic. The reaction of each system depends on the integrity and condition of that system. Abnormal reactions to irritation may point to one or more of these systems which may be damaged.

Dr. Crossen's paper takes up the type of woman who has a damaged psychic system accompanying pelvic disease. This paper is timely because I know that every one of you will agree that too often a woman is operated upon without any regard whatever to her psychic system. It is true that the field is so large that the average surgeon cannot grasp all the phases of neurasthenia, but when a woman presents herself with a long string of symptoms, and examination does not reveal enough pathology to explain these symptoms, neurasthenia may be suspected. It may be that a mild lesion in her pelvis is so influencing her already exhausted nervous system that she is exaggerating her condition and all that is necessary is the correction of the trivial process coupled with a good deal of suggestion. It is quite true that the pelvic disease may be keeping up the neurasthenia.

Neurasthenia is simply nervous exhaustion. The exhaustion may be due to lack of sleep, malnutrition, mental pain and physical pain. But underneath is almost always a neuropathic or psychopathic taint. It is difficult to size up every case in this way and if the surgeon is not familiar with the various phases of psychic disturbance he should have a neurological colleague see the case with him.

Dr. Dickinson has just told us of patients with retroversion who began to have symptoms after they had been told that they had a retroversion. We all know that cases of movable kidney have more symptoms after they have been told of the condition than before. These are the symptoms of the associated neurasthenia not of the retroversion and the movable kidney. In fact all of the so-called reflex symptoms of various pelvis diseases are the symptoms of the neurasthenia which is so often present, and not symptoms of the pelvic disease.

Dr. Crossen has asked if operation is necessary. It is if the pathology present is augmenting the neurasthenia by causing pain which interferes with the patient's sleep, etc. We have a vicious circle present. The pain is adding to the neurasthenia and the neurasthenia is exaggerating the pain. The easier condition to treat is the lesion but this must be accompanied with the proper treatment of the neurasthenia. It must be remembered that the operation itself is going to add another load to the already overtaxed nervous system which began with a handicap because it came from neuropathic or psychopathic stock in so many instances. You have all had cases that were down and out for a while after the operation and this possibility should be explained to the relatives beforehand to avoid any unpleasantness later.

The question as to whether to be more or less radical is a very difficult one to answer in a way that may be applied to all cases. My own feeling is that we should be radical in everything except with the ovaries because we know that neurasthenics are very susceptible to changes in the balance between the endocrine glands, and that the relationship between the psychic system and the vegetative is a very close one.

Dr. Robert T. Frank, New York: There is just one word I want to say in connection with what Dr. Gibson said about being careful about removing the ovaries. If you are in doubt and the ovary is tender and you feel that it might have to be removed, there is a method of trying out to see what good you can do, without being radical. Give that patient some X-ray treatment of the ovary for a short time until you have reduced her menstrual period to every third or fourth month. In a young woman such effect is only temporary, and during that time you can readily see whether any improvement is to be hoped for by castration.

Dr. Samuel W. Bandler, New York: Dr. Smith's paper brings us back to the education of girls in their earlier years, during puberty and afterwards, for the education which they have, the knowledge of sexual matters which they have, the experiences which they have fixes something in that lower plane of consciousness that they will never get over. A girl who has had an unhappy love experience as a girl, a girl who loves one man and doesn't marry him and years afterwards marries another man is liable to be nervous for that reason and no other, and if we could examine into the whole life and into the pre-adolescent life and into the inner heart life of our patients as we do into their pelves, we would know a great deal more of why they are nervous and why we call them neurasthenic and hysterical.

I never dream of calling a patient hysterical and neurasthenic until hyperthyroidism has been absolutely excluded. The ovary is related to the thyroid. The thyroid is a sexual gland for Basedow's disease, showing eight to ten cases in a woman to one in a man. Study the relation of the ovarian secretion to the thyroid and you will get hundreds of such cases.

Pain is a factor in the production of nervous disease. I believe that no condition in the pelvis, except ductless gland disease, unassociated with pain is a cause reflexly of any nervous annoyance. I think no scar in the cervix, no position of the uterus, no prolapse, no anything in the pelvic organs, unless the patient feels a pain or feels a pressing or feels a bearing down or something of which she is conscious has any effect on her nervous system, unless it is through the medium of the ductless glands, of which the ovary and the thyroid are the two most important.

Next, let me say that an operation, the very anæsthesia, produces a metabolic change and many patients are better for an operation, especially for that reason, if you don't promise too much. Promise her that you are going to cure her by the operation and you don't, and she is worse. If you must, tell her that an operation may have something to do with a hoped for improvement, especially if she is insistent upon having an operation, if she wants to join that large class of women with whom she can sit in the parlor and talk about operations.

Any woman who is suffering from constitutional dysmenorrhea should be operated on. Any woman who has had all the children she is going to have, who before her menstrual periods and during her menstruation suffers from constitutional dysmenorrhea—I don't mean pain in the pelvis, I mean a total, complete upset of her nervous nature, so that she is as different a week before menstruation from her usual nature as can be—in those cases, I insist, in my own practice, that the only logical answer I can give to those patients, if it is limited to the annoyance produced by the general congestion of menstruation, is to take out that uterus and leave the ovaries.

Dr. Smith, in closing: My object in bringing before you this subject was, first, to point out the necessity of our studying a little further into the psychology of the pelvis in its various relations; secondly, more particularly, the pelvic reflexions. You have all been looking, as Dr. Crossen says, for something more tangible, and it seems to me that this gives us at least a working basis upon which we may build up clearer ideas. I think that eventually the discussions with regard to neurosis will entirely go out of our gynecological society meetings. I think it is a subject for the neurologist and that we are only indirectly interested. We will act in consultation with the neurologists rather than the reverse. To be sure, we may be of help to the neurologist in putting the patients in better physical condition and thereby helping her physically, but the care of these patients is beyond, I think, the time or the skill or the knowledge of the ordinary gynecologist.

FUNCTIONAL AND ORGANIC DIFFERENTIA IN NERVOUS DISEASES AS SHOWN BY CASES.*

By TOM A. WILLIAMS, M.B., C.M., Edin.,
WASHINGTON, D. C.

Case I.

A WOMAN was sent by Dr. W. M. Barton with a statement that she was a psychasthenic and with a request that I treat her by psychotherapy.

The basis for this diagnosis had been the fact that the patient was afraid to go out alone: the reason for this was the fear of dizziness.

But on examination I found that the real cause of this fear was not an obsession as to whether or not the attempt at walking would produce dizziness, with a phobia of going out in consequence. Nor were there any psychasthenic stigmata, such as morbid anxiety, monomanias, phobias or tics. Nor was there any extraneously originating idea, such as characterizes hysteria, that dizziness upon walking was inevitable.

The real explanation of the woman's fear was that she sometimes became so dizzy as to fall and hurt herself; it was prudence and not phobia which actuated her.

That being the case, physical conditions were sought to account for the dizziness. Of course, insular sclerosis was thought of; but no such signs as nystagmus, intention tremor, modified reflexes, papillary pallor, sensory exhaustibility or speech disturbances were present. There was, however, a marked bruisability of the tissues, and a tendency to edema; the blood pressure was very low, and asthenia was considerable.

The inference was drawn that the vertigo was due to disturbances of the vascularity of the semicircular canals on account of an unstable capillary circulation.

The giving of adrenal gland substance was resolved upon on account of its pressor effect. The therapeusis was successful; and the attacks ceased immediately.

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* Read at the Annual Meeting of the Medical Society of the State of New York at Saratoga Springs, May 18, 1916.

The Lesson It Taught.

This case illustrates a most important differentium in clinical neurology, in that a psychotic disorder should never be diagnosed by the superficial aspect of the presenting symptoms, however conspicuous; as in all clinical situations, the mechanism of the presenting symptom must be understood before its adjudication.

In this case, unwillingness to go out was not a phobia of psychasthenic type as the family physician supposed; nor was it a hysterical phobia, as it might have been. But even had an interpretation not been forthcoming, that would have been no reason for diagnosing a psychoneurosis. To do this, the methods of exclusion is an abominable panachronism. For the positive diagnosis, differentia of a psychogenetic disorder are just as legible to him who has learned to read as are the athognomonic features of such familiar diseases as tuberculosis, diabetes, or organic heart disease.

A psychasthenic is always more or less pervaded by an undue anxiety or timidity founded upon fear of a dreadful situation or self-distrust. It is part of the character and not a mere episode such as occurs during toxicosis or infection.

History a Fallacious Criterion.

However, a history of previous good adaptation is not an adequate differentium, although it is so regarded by many; for, as a matter of fact, the majority of psychasthenics conceal their state for long from their friends. The true differentium is the presence or absence of confusion. If this is not present, the patient's ability to see clearly and analyze quickly is conspicuous even in the presence of the intense emotional disturbance he feels. On the contrary, if a toxic state is present, even although hallucination or ideas of reference have not formed, proper tests reveal slowing of thought or intellectual confusion in complex trains of thought; so that discrepancies in mentation will occur in proportion to associational difficulties, and quite apart from the patient's affective attitude. The psychasthenic is in marked contrast, in that associational richness only stimulates him to an effort of which he is entirely capable when his interest is awakened in anything beyond his immediate obsession, and it is only concerning some aspects of this that the thought associations may be slowed.

Of course, when a toxicosis can be detected by physical tests and there is a clear history of change of mentation, the diagnosis is easy; but in the more subtle cases, the differentia can be established only by those having minute knowledge of them and the technique required for their elicitation clinically.

Even in cases without stigmata, differentiation is possible, as in that which follows:

Tic Without Anxiety.

This case, in which the psychogenesis could not be elicited, is that of a Russian boy of eleven, seen by the writer at the George Washington University Dispensary (Dr. Frankland's service), in December, 1908. He declares that ever since the age of five he has felt the need of periodically turning his head abruptly to the right every few minutes. He experienced no desire to do this, but as he never attempts to inhibit the movement, and performs it at least every few minutes, he gives himself no opportunity to develop angoisse. He presents no other neuropathic stigmata, having neither scruples, timidities, aboulias nor feelings of inadequacy, morbid fears, nor monomanias, although he occasionally daydreams, but what boy of his age does not? The movements are short, yet not "electric," but they often occur in volleys. They are such as could be reproduced volitionally. They are painless and disappear with sleep. However, no conditioning idea could be elicited, as he is entirely unaware how he began the movement, saying, "It just comes." The movements are more numerous when he is perturbed, and have never been influenced by any neutralizing subterfuges, none having been tried. They consist of sudden turning of the chin over the right shoulder, sometimes accompanied by its elevation and that of the shoulder, and a twitching of the face, more especially the lips.

So it is very evident that the spinal accessory nerve alone could not perform such a movement, and it is inconceivable that a local irritation could comprise the facial nerve, the spinal accessory and all the nerves of the cervical plexus without having some effect upon contiguous structures and implicating the phrenic nerve as well. It must, therefore, be cerebral.

The question whether focal or psychic is answered by the test of voluntary inhibition of the movements, and I found that by maintaining his attention firmly to follow with his eyes the movements of my slowly moving finger, fixing it intently and vividly, I was able to entirely suppress the movement, first for a space of thirty seconds, and later for periods of increasing duration. I then impressed upon him the power of his own will in suppressing the movements; and he was ordered to come to the dispensary every day for treatment, which consisted of the psychomotor discipline of fixing with his eyes slowly moving and stationary points for longer and longer periods under the supervision of two of the students in the dispensary. He supplemented this by similar exercises at home, and at the end of ten days, the tic was under such control that he made the movement only twice daily, later recovering completely. I subjoin a table of some differentia of such cases (see page 437).

The Fallacy of Therapeutic Criteria.

A differentium sometimes appealed to is the result of psychological reconstruction in therapeutics. But a favorable result of this does not, of course, enable one to say that physical conditions have not occurred, and that their removal is not merely coincident with the therapeusis rather than its consequence. For we must keep in mind that the causes of confusional states tend to spontaneous recovery as resistance against infection is established, or as the effects of toxins are slowly removed by the reparative body processes. Of this, a familiar example is the recovery from a polyneuritis, often a long proceeding.*

When sensory disturbances are present, grave errors are frequent in diagnosis; for the differentia are not adequately known in a practical way, for want of that training in clinical neurology which is an insufficiently regarded essential in the equipment of a good clinician.

The following remarks summarize some most important differentia, although they are not sufficiently widely applied even by many who should know them.

The Differentiation of Organic From Hysterical Sensory Disorder.

Organic hemianesthesia may resemble that of functional type when the lesion is situated in the cortex, corona radiata, thalamus, or lemniscus; that is to say, the defect will involve all modalities of sensation in the same area; but the organic form differs in its incompleteness, being most marked at the extremities and in the fact that it passes or falls short of the middle line, although the loss of sensibility there is only partial. When the lesion is near the optic thalamus, hemianopsia may occur. It is always accompanied by hemiataxia and astereognosis of the

DIFFERENTIA OF OYSKINESES

Spasm	Tic	Chorea	Cerebellar and Cerebello-Rubro-Spinal Tremor
Sudden, resembling electrical stimulation.	Brusque and brief, slower.	Still slower.	Not sudden but regular and increased by movement.
Rythmic and synchronous or in lightning waves of same movement.	In volleys of similar movement repeatedly.	Irregular, not synchronous.	
	When tonic, distinguished from stereotyped act by absence of catatonic attitude.	Extreme variability in movement with tendency to unilaterality.	Similar oscillations.
Muscle often enfeebled.	No weakness, often hyperkinetic hypertrophy.	Myasthenia, hypotonia.	Myasthenia, hypotonia, or the reverse.
Exaggeration of reflexes concerned only.	Reflexes normal.	Reflexes often modified.	Reflexes increased.
Distribution of peripheral nerve.	Locally conditioned by an idea.	Laterality.	Laterality or not.
Often painful, always distressing. No craving.	Painless.	Sometimes painful.	Never painful.
Persisting in, and may interrupt, sleep.	Tic disappears in sleep.	Sleep interfered with.	Disappears in sleep.
Purposeless.	Pseudo-co-ordinate, intention act.	Purposeless.	Purposeless.
Irreproducible voluntarily, unmodified by volition or emotion.	Influenced by emotion or volition, but impulsive and followed by satisfaction, always arrestable (leaving no trace) by a subterfuge, a neutralizing act, inefficacious mechanically or physically, but effective psychically; also variously by solitude, distraction, position, etc.	Uncontrollable by will, aggravated by emotion.	Cease at rest.
Various etiology, but generally peripheral irritation, *e, g.*, trigeminal neuralgia (which is not a true tic).	Psychasthenic character. Similar heredity, but always first generated by a determining stimulus; it is the sequel to the unhindered repetition of a once voluntary purposeful act, becoming an impulsive obsession.	Acute rheumatic diathesis, probably bacterial. No similar heredity.	Various, neoplasm.

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* See my article on "Treatment of Some Confusional States," International Clinics, June, 1916.

cerebral type, and usually by very painful subjective sensations, particularly in the shoulder joint. The preponderance is upon the sense of attitudes, the condition is nearly always preceded by fugitive hemiplegia, and is often followed by a posthemiplegic choreoathetosis.

When cranial nerve symptoms are added to the foregoing, it can safely be said that the lesion is in the mid-brain or pons; in the latter it causes trembling, cerebellar dysnergia, dysarthria, and palsy of associated lateral movements of the eyes with nystagmus on looking up or down. A hemianesthesia of subcortical origin requires a lesion so vast as to involve the motor projection fibers, and is therefore accompanied by a marked hemiplegia.

The hysterical anesthesias are characterized by being completely removable by suggestion, and susceptible of returning under the same influence at the will of the operator (Babinski, Williams).*

The history of their onset is generally traceable to imitation or perhaps even more often to unguarded medical examination, as in the case in which the doctor gleefully related: "The boy had no anesthesia at first, but I examined him most carefully the second time, and found the foot anesthetic; on the third occasion the leg became so, and the defect then extended up the whole limb." The stigmata are valuable corroboratively, but only as proof of suggestibility, beyond which they have no validity. The pupillary reaction to pain occurs in organic cases as well as functional cases, unless that particular afferent path is interrupted.

The fact that the anesthesia is most marked in the most paralyzed limb affords no real help to diagnosis; for this is apt to be the case by suggestion as well as by morphological contiguity. Nor is variability so safe a criterion as generally postulated; for Egger's researches have shown how variable modifications of sensibility often are even when due to organic changes.

Text-books are also erroneous in stating that distribution of disturbed sensation in spots is probably hysterical for as a matter of fact, such anomaly is very common in tabes and other radicular affections, and occurs also in multiple and mixed sclerosis of the cord (Dèjérine). Involvement of all the special senses is hardly possible from purely organic causes, although the commonness of organic "point d'appui" for any hysterical clinical picture should prevent us from denying any organic element, even when hysterical factors bulk largely in the case.

Radicular Anesthesias. A type of esthetic perturbation very important from a diagnostic point of view is the radicular found conspicuously in the symptomatic sciaticas, and enabling one to localize, and often by so doing, to infer the nature of the pathological process at work (Lortad-Jacob, Dèjérine, Camus). The radiculitis of tuberculous or syphilitic pachymeningitis is of this kind. The diagnosis of these conditions from the symptomatic sciatic of spondylitis or other arthritic lesion is made by the sensory loss being so clearly radicular in the latter. Of course, one must exclude referred pains of visceral inflammation and of joint conditions themselves, by the use of Lasegue's sign and the watching of the opposite leg, which is drawn up too when a true sciatic irritation is produced.

In the upper extremity band, anesthesias are very common, and again signify a radicular affection. Through the embroyonic twisting not being so great as in the lower extremity, nerve trunk involvements are less readily distinguished from those of the roots. Acroparesthesia of only a few fingers should lead to a careful investigation of objective changes in the sensibility (Morriston Davis). They may be due to angina pectoris, supernumerary rib, tabes, spondylitis, tuberculous pachymeningitis, etc.

In the neck and face also an esthetic modification of radicular distribution often enables a distinction to be made between simple neuralgia and involvement of nerve roots.

The *history as a differentium* is particularly unreliable when a neurotic individual presents himself for the purpose of getting rid of an incommoding symptom of a kind new to him. The temptation for the physician to regard it as merely a fresh manifestation of neuroticism must be very great if I am to judge by a number of instances where patients have been referred by their physicians because of their failure to benefit them. This is very often on account of the failure to make a neurological and psychiatrical survey before treating the patient. A few instances may make clear the issue:

An Organic Case Believed Neuropathic.

An officer was sent me because of tremulous speech and hands. He had always been of a quick temperament, and had been a free drinker. The service physicians believed that these factors were responsible for the tremor. But as he had been under treatment for three months without any improvement, and, as the tremor was not that of the drunkard, it being coarse and not giving the quinquad sign,* and as its onset was rather sudden, as his legs had been unsteady, and he sometimes struck the step in mounting the stairs, and the gait stamped somewhat, as his speech was hesitating, and sometimes stumbled, and as he had no neuritic pains, and that examination indeed showed diminution of the deep pain sense, great exaggeration of the deep reflexes, and impaired diodokinesis, unequal oblate pupils, with diminished and only fugitive reaction to light; I decided, although the Wassermann reaction had been found negative, that syphilis was the source of his symptoms; although he strenuously denied having this. But the service doctors refused to accept this diagnosis in spite of a marked lymphocytosis of the cerebro-spinal fluid (28 cells per cubic millimetre) which I reported to them. Accordingly, although he consented to receive salvarsan twice, the scepticism of the service doctors prevented further treatment, and the patient developed paresis and died in a fit before three years had passed.

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* International Clinics, Vol. III, 1908.

* This consists of a rapid, regular series of minute crepitant oscillations felt when the examiner's fingers are pressed against those of a patient; it is strongly indicative of toxic states. To one who has observed it, it can never be mistaken for the coarse unsteadiness of movement which occurs in lesions of the central nervous system.

The differentia in this case were perfectly clear, in spite of the entire absence of intellectual defect when I examined him, but they were outweighed by an unjustifiable reliance upon the patient's history, and an absent Wassermann reaction, as well of course, as by an ignorance of the significance of neurological signs.

The case is a striking illustration of the fact that the rapid onset of tremor even in a neurotic individual is significant of organic disease, and should never lightly be attributed to an increase of nervousness.

It was not the tremor, however, but the physical signs which lead to the diagnosis, a comparatively easy one to an experienced neurologist.

But in the case which follows the nature of the tremor was so deceptive and the physicial signs so equivocal that the combination misled two New York neurologists into a diagnosis of insular-sclerosis.

Syphilitic Multiple Sclerosis Diagnosed Clinically in Spite of Negative Laboratory Tests.

A woman aged thirty-nine was sent to me from New York State because of what had been diagnosed by several neurologists as multiple sclerosis. Her physician wrote asking if I could suggest some treatment or perhaps modify the diagnosis.

The patient declared that she had been intensely nervous since the birth of her boy eight years ago; since two and one-half years this had consisted of palpitation and a feeling of dread, great unsteadiness of the hands, voice and gait. In addition there was marked incontinence of urine and extreme obstipation with occasional incontinence. She was dizzy when tired, and the eyes were blurred.

Examination showed great exaggeration of the tendon reflexes, but no corresponding diminution of the cutaneous reflexes, and the great toes did not extend upon stroking the sole of the foot nor by other stimuli used to provoke that reflex. But that there was some interference with the pyramidal system was shown by absence of reflex flexion of the toes, all of them remaining immobile to the stimuli of reflectivity.

The absence of the sign of Babinski in a patient whose illness was of such gravity and duration made me suspect that insular sclerosis might not be present after all; and on proceeding to the examination of the eyes, my doubts received further support; for no nystagmus occurred even during rapid intentional movements; and the optic papilla showed no atrophy, although slightly pale. The absence of three signs of such importance compelled me to contradict the previous diagnosis, in spite of the presence of intention tremor, scanning speech, impaired diadocokinesis, a slight *moria,* such as often occurs in insular sclerosis, and a diminution of vibration sense in the legs.

But it is pretty well known to neurologists that the symptoms of insular sclerosis may be simulated, even to a greater degree than was shown by this patient, when there is a diffuse chronic inflammation of the nervous system produced by the treponema pallidum. This I suspected to be the condition of this patient.

Accordingly lumbar puncture was done on February 13th, when 30 cc. of fluid very rapidly came, and Dr. Nichols reported that there were 7 lymphocytes per cm. This slight lymphocytosis still left us in doubt, for an increase in cells has been reported in cases of insular sclerosis.

However, I put the case to the patient, who decided to permit the experiment. So I injected a full dose of salvarsan into a vein on February 22d. This rendered her almost helpless for about two days. Then she began to handle herself much better, and on the 28th she also felt much better and the motility still further improved. The reflexes and sensibility were as before, but the intention tremor had greatly diminished.

So on March 7th the spinal fluid was again examined, and a luetin test was begun by Dr. C. A. Simpson. The cells had diminished to 5 cm. This puncture caused great pain, headache and nausea. After this cleared up, salvarsan was again given on March 15th. Within twenty-four hours her legs gave way twice, but a great improvement again followed in walk and speech. The intention tremor disappeared, and her sleep became restful. The Wassermann reaction remained negative as before; but a papule rapidly formed where luetin had been injected, and when I saw her five days after the salvarsan, a broken postule was present which Dr. Simpson pronounced a luetin reaction.

The following letter was sent to her doctor, who expressed his pleasure thereat in stating that the case had baffled several neurologists:

Mrs. B—— is returning, after receiving salvarsan twice and appearing much improved. I think we may say the diagnosis is positive now, for the reaction to luetin, which Dr. C. A. Simpson declare to be pathognomonic, declared itself after the second injection of salvarsan, although it had been quiescent more than a week before that. This, in connection with the puerperal history, the lymphocytosis of the spinal fluid and the absence of some of the most characteristic signs which might be expected in true insular sclerosis, decides me. I recommend that you continue treatment by salvarsan and mercury for some months; although I do not believe that full restoration of function will occur now, as there must be considerable destruction of nervous tissue. I have not named the diagnosis to the patient. Please accept my thanks for sending me a problem of such interest and for the pleasure of having been able to afford some benefit."

Commentary.

The low lymphocyte count in the presence of such severe symptoms and the relative poverty of radicular signs indicate that the pathological process causing the symptoms is within the central nervous system in the main, and not merely an involvement of the roots by an extension from the meninges into their coverings of syphilitic lepto-meningitis, as is the case in tabes dorsalis. There are, in all probability, foci of ill-nourished, if not necrotic tissue, scattered throughout the central nervous system, perhaps as a result of endarterial proliferation, which may have led in some cases to obliteration. In proportion as this is incomplete and the tissue elements have not perished, there will be restoration of function, as tissue activity is resumed upon the removal of exudate from arterial wall or connective tissue, by the destruction of its cause, the treponema pallidum, by salvarsan or mercury.

In the presence of lesions of this character the signs may lack all systematization, as in this case.

In insular sclerosis, it is rare that the midbrain or the pyramidal tract escapes when the process is at all extensive. The absence of nystagmus and of extensor response of the toes immediately made me suspicious of this diagnosis. The experimental therapeutics confirmed my doubts; but unless the luetin reaction be regarded as pathognomonic, only an examination post mortem can give absolute proof; and in some cases even this has failed to distinguish between disseminated sclerosis of the usual type and that sometimes believed to occur as the result of syphilis.

Laboratory Signs as Compared With Those at the Bedside.

It must not be forgotten that post-mortem appearances are after all merely the results of the reaction of the body to insult, and that these results both resemble one another and vary so much that few of them are pathognomonic for any particlar invasion. For instance, even plasma cells, so characteristic in paresis, merely denote chronicity, and may occur under many conditions quite irrespective of syphilis.

Again, during life the reactions of the body to the particular noxa are by no means uniform; otherwise we should not find the Wassermann reaction absent in nearly 40 per cent of tabetics, and we should not find it present as a reaction to the organism of leprosy.

In conclusion, it cannot be too often insisted upon that the absence of the reactions which are detected by the usual laboratory tests for syphilis, is by no means conclusive of the absence of that disease; the failure to find them merely indicates that, at that particular moment, the patient is not reacting strongly enough in that particular way. The results of previous reactions, as manifested by present clinical signs, furnishes a basis for a diagnosis in every way as potent, and no more lacking in that objectivity which it is the fashion to claim pre-eminently for certain methods conducted in the clinical laboratory. A moment's reflection shows the fallaciousness of this claim; indeed, a non-reacting pupil, an absent knee-jerk, a positive great toe sign, are no less objective than blood cell count and diazo reaction, or an Abderhalden test; furthermore, these latter are much richer in liability to false interpretations, as well as errors in observation than are clinical signs in the hands of an experienced neurologist.

The Adjudication of What is Found in the Laboratory.

In this case, the laboratory reactions provided no assistance, it was knowledge of the clinical history of diseases of the nervous system which accomplished the diagnosis. The over-reliance upon laboratory tests is a common temptation nowadays; as for instance in a case where an infected finger was regarded as blastomycosis on account of the histological and bacteriologic findings.* Valuable time was thus lost, especially as cutaneous exanthem and faucial ervethema were strongly denied. Clinical examination later showed the presence of both these, and a Wassermann test confirmed the diagnosis of syphilis. This patient was himself a physician, unusually intelligent and well-informed. If in an instance like this, history can be so deceptive and the laboratory so misleading, are we not forced to the conclusion that the first differentia of disease are dependent upon the care and knowledge brought to a physical examination, and from this I do not except the exploration of the mentality, including the emotions.

It is only the misuse of the laboratory with accompanying neglect of the clinic that need be decried; for no one more than the student of nervous diseases comprehends the tremendous services provided in the laboratory, not only post mortem, but in diagnosis during life and in treatment.

For instance, in the differentiation of the dementias, laboratory syphilogy has been of almost incredible assistance. For instance—it could hardly have been believed that at Danvers before the Wassermann was used, that of twenty-eight cases affirmed to be paretic, twenty are now definitely classed otherwise; and of seventeen cases where paresis was the probable diagnosis not one proved to be so. Dementia precox is the real conditions of many of these cases (quoted from L. G. Lowry, *J. A. M. A.*, p. 1582, Vol 66, 1916).

That better diagnosis than this can be made clinically nowadays at least, we have a right to believe. But the speed and comparative certainty of a specific biological test prevents much loss of time, many doubtful diagnoses and some serious errors. The only protest we have a right to make is against the looking upon of a laboratory test as one of a superior order, a better differentium. However, its only superiority is that it is more easy to observe, and more simple to obtain uncomplicated than is the clinical reaction. If as much attention were given in the schools to the technique of clinical neurology as is now given to laboratory technique, a great many serious errors of diagnosis would be obviated. For instance—the proper method of eliciting Babinski's toe sign, the proper precedure for ascertaining the pupillary light reflex, the proper method of examining the sensibility were conspicuously absent in the American neurological clinics which I visited on my return from Europe in 1907.

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* Heidenfels, *W. Va. Med. Jour*, 1916. And the author, Scope of Modern Neurology, *Va. Semi-monthly*, 1916. Management of Psychoneurotic Patients, *Southern Med. Jour.*, July, 1916.

Discussion.

Dr. Malcolm S. Woodbury, Clifton Springs: There is just one point that I feel like impressing in regard to Dr. Williams' paper. I think that in all Dr. Williams' writings he has made more clear than any other American writer the very great need of proper appreciation of the differentia in diagnosis of functional nervous states and the necessity for proper selective treatment.

For these cases the discovery of the psychic mechanism underlying the individual case is essential to diagnosis and therapy. The articles that Dr. Williams has published in this regard seem to me not only to deserve the attention of the psychiatrists but that of the general practitioner. The need for proper study of the differentia of nervous conditions is well illustrated by a case which I heard of from Dr. Gordon Holmes of London. An aged woman fell off a table when she was trying to hang a curtain. She attempted to rise to her feet after this experience and immediately fell again. She was sent to one of the London hospitals and was examined by several physicians and a diagnosis of hysteria was made. She was treated and sent home without improvement. She was later sent to another hospital and examined by a neurologist, and it was found that she had no sense of passive motion, vibration or position in the legs. A diagnosis of hemorrhage into the posterior columns of the cord was made.

Fortunately, or unfortunately, she contracted pneumonia and died a few days later, and on post mortem it was found that an oval hemorrhagic area existed, involving both posterior columns of the cord. In neurological cases when we have examined a few reflexes, the sense of touch, pain, and the thermal sense, we have made scarcely a beginning. Both physical and psychic examinations must be thorough.

Dr. Thomas W. Jenkins, Albany: I have had the pleasure of reading Dr. Williams' works from time to time, and I wish to say that I enjoyed this paper that was read by him very much. The trouble with us general practitioners is that we don't want to believe the things that happen to our own clientele. If we don't know them so well, we are likely to believe their symptoms as they are told to us, but if we know them very well we deceive ourselves. Even now, I have a patient under observation and think I know what the trouble is, yet I don't want to believe it.

A little more than a year ago I saw a patient who had been seen by two or three other physicians and who had diagnosed hysteria. But as the patient had fallen, striking on her back, I felt pretty sure she had sustained a spinal injury, subdural hemorrhage. She also had amenorrhea. Afterwards she recovered rather promptly, but now over a year she still has amenorrhea, so I do not know where I am yet.

Dr. Williams (in closing): I would just like to say that there is no difference between neurological differentia and any other differentia at all, either surgical or medical. They all depend upon signs, and the ascertaining of those signs is a matter of particular observation. The learning of those and the meaning in relation to the physiology of the nervous system is the crux of the differentia of nervous disorders.

The desire not to believe the worst about those dear to us is simply human fraility, which doctors and especially surgeons have to get away from if they want to be efficient and really help patients.

I should like to have said something about the differentia of traumatic neuroses, but I omitted it. They are the same as hysteria—it is simply hysteria. The complications, the motive which is a clear definite one, cannot always be differentiated by a physician as to whether the patient is a conscious malinger endeavoring to exploit some one for financial gain, or whether the patient is partly an unconscious simulator of disease in order to gain attention or sympathy, or because he believes that he ought to show the kind of attention he is trying to show without any ulterior motive or sympathy—a desire to conform to what is proper. And it seems proper to believe when you have a serious accident that your spine has been damaged, and you have what some physicians style "functional spine"—a word without any meaning whatever if you analyze it.

Then, that person is perfectly honest; and the only way to cure him is to show him how to get well, which applies to every psychogenetic case.

But you can't show a child how to read, you have to each him, so you have to teach the patient how to get away from that which has incommoded him and disturbed him. The longer it has disturbed the patient, the longer it will take him to get away from it. That is the logical effort, to separate the organic changes from those which are psychogenetic. That is the crux of the whole matter, differential diagnosis, which depends upon neurological signs and their importance.

ACUTE EPIDEMIC POLIOMYELITIS—A CONTACT INFECTION.

By PHILIP A. E. SHEPPARD, M.D.
BOSTON, MASS.

A POINT of great moment at the present time is the manner of transmission from case to case of the infectious material resulting in the development of the acute infectious process we call "Infantile Paralysis." And it is with the sincere hope of being helpful in narrowing the field of investigation that the following data is submitted.

In an earlier paper[1] attention was called to certain groupings of cases in and around Springfield, Mass., and were briefly submitted as showing a peculiar line of contact, direct and indirect.

Emphasis has been given the "Brues-Sheppard" hypothesis[2] [3] which provides that it is impossible upon *a priori* grounds to rule out Stomoxysis Calcetrans L. (the biting stable fly) as a carrier of acute epidemic poliomyelitis, and a final decision must await the result of experiments. It does not necessarily follow that we believe this is the only method of conveyance of this infection, although it is a striking fact that the life-incidence of this biting stable fly coincides with the epidemic expression of "Infantile Paralysis." It seemed appropriate at this time to enlarge upon the equally important possibility of personal contact, and illustrate this by charts elaborated from my experiences both while making epidemiological studies of this disease as special medical investigator for the Massachusetts State Board of Health (1909-1912 inclusive) and since.

Personal Contact.—Pasteur[4] as early as 1897 makes mention of seven cases in one family and in every epidemic since dual cases in the same family or cases that gave a history of contact have been reported. The variable element of personal opinions must give way to these facts which I believe leave no doubt as to the contagiousness of the disease.

Channels of Entrance of Infection.—Of the possible channels of infection we must consider both the respiratory and the alimentary tracts as the most likely through either or both of which channels the virus may be either inspired or ingested (as for example in influenza and typhoid) nor can we at this time rule out the probability that the virus is introduced into the body through a solution of the continuity of the skin, either by insect bites or wounds (as for example in malaria and tetanus).

As to the *Sources of Infection* we must consider the following:

(a) Contact with actual cases of the disease with paralysis.

(b) Contact with abortive cases.

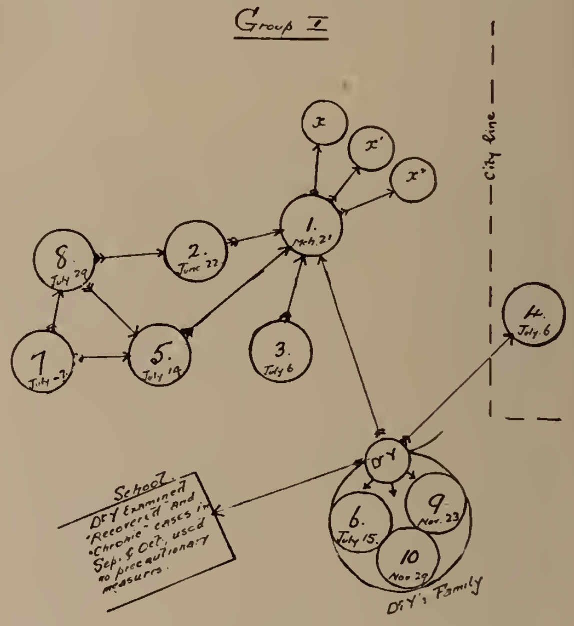
(c) Contact with third person, a healthy individual who has been previously in contact with either a paralytic or abortive case.

(d) Contact with fomites, etc., from an infected case.

(e) Contact with objects previously in intimate touch with infected persons, such as letters.

(f) There is a further possibility of chronic cases providing sources of infection by means of contact during some active infectious process such as gastric enteritis.[5]

In the charts that follow the line of contact will be graphically shown together with descriptive text.



GROUP I.

Ten cases occurred in this group:

CASE No. 1.—Age five, occurred on March 21, in the family of Mr. X., a public collector of accounts, who reported since the illness of his son several cases (x, x^1, x^2), have developed in families where he had made business visits. Dr. Y. attended this case, but did not report it, nor was the case isolated.

CASE No. 2.—Age four, occurred on June 22 and terminated fatally, who as a playfellow was in intimate contact with Case No. 1; although Case No. 2 was living with his grandparents in another part of the city he frequently visited his parents who lived in the same tenement house but on the floor below, with the family of Case No. 1. Contact was intimate and frequent with Case No. 1 and No. 2.

CASE No. 3.—Occurred on July 6 which terminated fatally within a week, was in intimate contact with Case No. 1.

CASE No. 4.—Had its acute onset July 6 and though occurring in a neighboring town properly belongs in the group. The line of contact however was indirect since Dr. Y. who attended Case No. 1 also attended Case No. 4, which terminated fatally in a few days.

Case No. 5.—Acute onset July 14 was prior to the attack visiting at the house of Case No. 1 and playing with him.

Case No. 6.—Occurred on July 15, the infant daughter of Dr. Y. who attended Cases No. 1 and No. 4. This infant developed a right hemiplegia and was not at the time recognized as acute epidemic poliomyelitis. This case occurring in the family of a physician who had been in intimate contact with at least two known paralytic cases (one fatal) and used no precautionary measures, strongly suggests indirect contact by third person healthy.

Case No. 7.—Occurred on July 27, who gave a history of having been intimately in contact playing with Cases No. 5 and No. 8.

Case No. 8.—Occurred on July 29 and had been intimately in contact, playing with cases No. 2 and No. 5.

No other cases could be traced in this group until late in the fall of the year, when two cases occurred in Dr. Y.'s family. The doctor as school physician examined about two thousand children on the reopening of schools in September and October, among them several recovered cases of infantile paralysis and children from families where cases had occurred that year.

Case No. 9.—Age three, occurred on the 23d of November, the second daughter of Dr. Y. who had attended Cases No. 1 and No. 4 and had examined recovered cases as above, and since she developed left facial paralysis the diagnosis of Bell's palsy was made.

Case No. 10.—Age five, occurred November 29, the eldest daughter of aforesaid Dr. Y. and was rightly diagnosed as acute epidemic poliomyelitis. At this time the diagnoses of Cases No. 6 and No. 9 occurring earlier in Dr. Y.'s family were revised and all three (comprising the entire family of Dr. Y.) were finally reported as positive cases of acute epidemic poliomyelitis.

Group II.

Five cases occurred in this group.

Case No. 1.—Occurred on May 21, and was attended by Dr. Z. No diagnosis was made at the time but the case was reported finally.

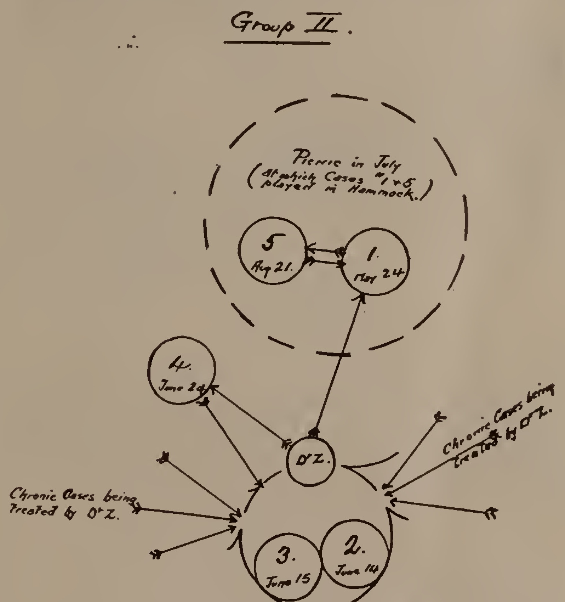
Case No. 2.—Developed in Dr. Z.'s family on June 14.

Case No. 3.—(Abortive attack) developed in Dr. Z.'s family on June 15.

Dr. Z. was in intimate contact with Cases No. 2 and No. 3, members of his family, while in attendance on Case No. 1.

Case No. 4.—Occurred on June 24 who prior to attack was an office patient and attended by Dr. Z. and later attended by Dr. Z. at his home where paralysis developed; the case terminated fatally.

Case No. 5.—Occurred August 21 and gave a history of having been in contact with Case No. 1 at a picnic where they were swinging in a hammock together, some time in July (so that it must have been during the convalescence of Case No. 1).


Group II.
Picnic in July
(at which Cases #1 & 5 played in Hammock.)
5
Aug 21.
1.
May 24
4.
June 24
Dr Z.
3.
June 15
2.
June 14
Chronic Cases being Treated by Dr Z.
Chronic Cases being treated by Dr Z.

Incidentally it is interesting to note that several chronic cases were visiting Dr. Z.'s office for treatment both before and during the epidemic period where the cases in this group occurred.

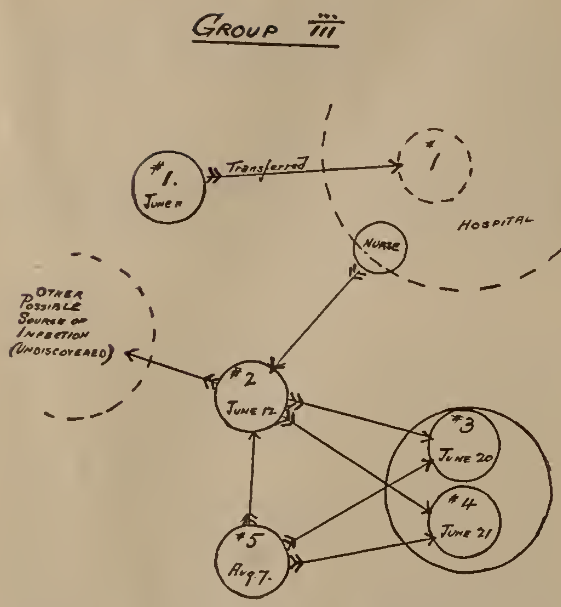
Group III.

Four, possibly five, cases occurred in this group.

Case No. 1.—Occurred on June 11 and was removed on that day to City Hospital, isolated, and assigned to the care of a special nurse.

Case No. 2.—Developed on June 12 in the home of the special nurse in charge of Case No. 1, viz: her younger sister; it seems doubtful that Case No. 2 is traceable to Case No. 1 for its source of infection, but Case No. 2 gave a history of having visited a family where other cases had previously occurred; details withheld.

Case No. 3 and No. 4.—Twin brothers occurred respectively on June 20 and June 21 in a house opposite the home of Case No. 2. The children had been in intimate contact, playing together and these twins had been cared for by Case No. 2.



CASE No. 5.—Occurred on August 7 in a family in the immediate neighborhood of Cases No. 2, No. 3 and No. 4 and gave a history of intimate contact with all three above named cases. This case terminated fatally.

GROUP IV.

Four cases occurred in this group.

CASE No. 1.—Occurred in the five year old girl of Dr. X. on June 16.

CASE No. 2.—Occurred on June 28 in the family of a grocer's clerk who took orders from and carried food stuffs to Dr. X.'s family and there came into intimate contact with Case No. 1. It is worthy of note that this grocer's clerk had on his special list at least four customers who traded with him at the grocery store who were parents in the homes of children who were afflicted with the infection both previous to and since the illness of Case No. 2.

CASE No. 3.—Occurred on August 11, about ten days after Dr. X. (father of Case No. 1) had been in attendance and was treating the child for "summer complaint."

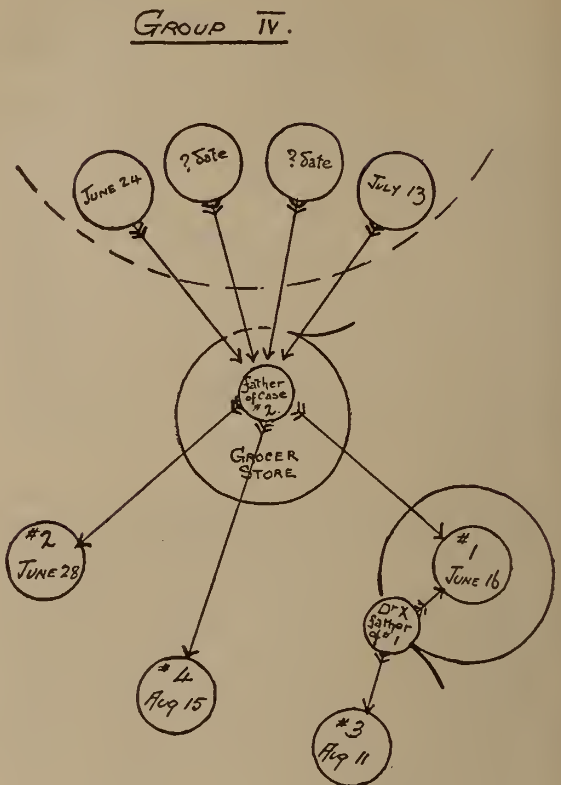
GROUP V.

Five cases occurred in this group.

CASE No. 1.—Occurred on 4th of June.

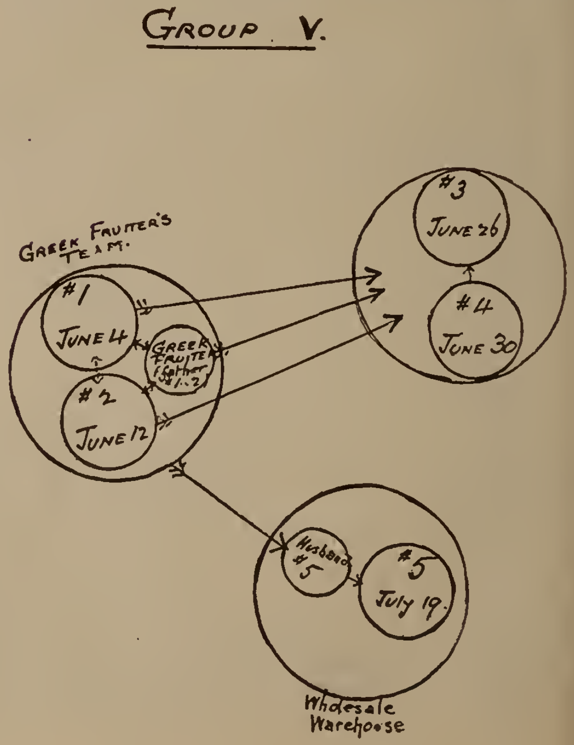
CASE No. 2.—Occurred on 12th of June.

The father of Cases No. 1 and No. 2 is a Greek fruiter who travelled extensively over the city with his fruit team and most of the time prior to their illness was accompanied by Cases No. 1 and No. 2.



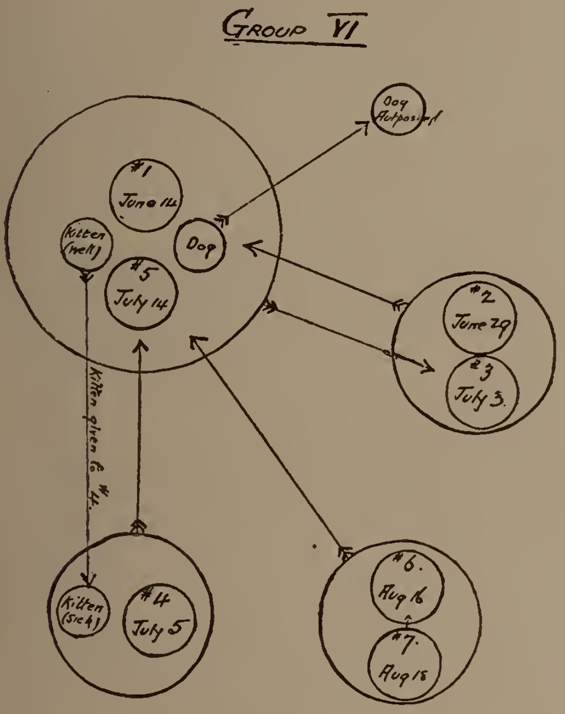
CASE No. 3.—Occurred on 26th of June in a family where the father of Cases No. 1 and No. 2 delivered fruit, etc., and came into intimate contact with the Greek fruiter and his children, Cases No. 1 and No. 2.

CASE No. 4.—An abortive attack occurred on 30th of June. This case was also exposed to



the Greek fruiter and his children and to Case No. 3 intimately.

Case No. 5.—Occurred on July 19, an adult which terminated fatally. The Greek fruiter (father of Cases No. 1 and No. 2) bought his fruit, etc., at the wholesale warehouse where Case No. 5 frequently spent much of her time in the office with her husband (the proprietor of warehouse) the Greek traded exclusively with the proprietor and hence the contact was frequent and intimate and much paper money passed between them. The line of contact for Case No. 5 was indirect as far as we know.



Group VI.

Seven cases occurred in this group.

Case No. 1.—Occurred on June 14 where another case (viz. No. 5) later developed. In this family a sick dog was found which later developed paralysis. The lesions in the cord of this dog were not suggestive of epidemic poliomyelitis.

Case No. 2.—Occurred on June 29.

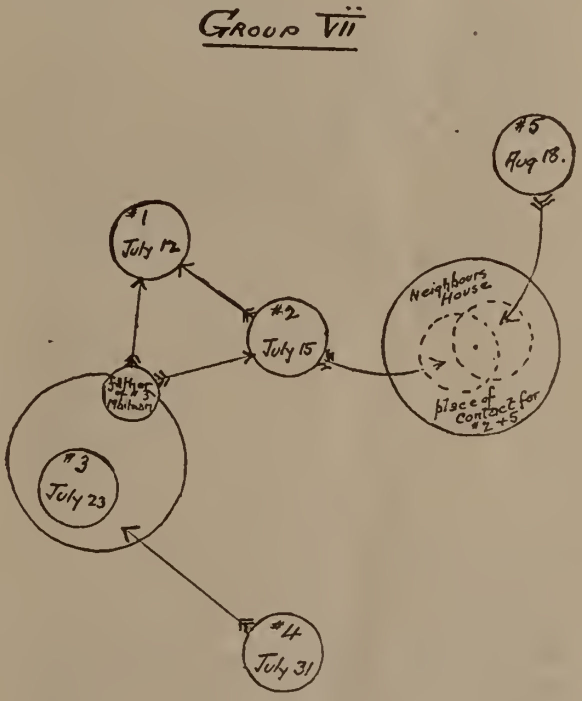
Case No. 3.—Occurred on July 3, two cases in a family in the immediate neighborhood of Case No. 1. These children, No. 1, No. 2, No. 3, mingled intimately and contact was quite intimate. Besides the dog mentioned above, there was a kitten in the family of Case No. 1 which was a good deal fondled by all of the children in both families above named.

Case No. 4.—Developed on July 5 (an adult man) who, previous to and during the illness of Cases No. 1 and No. 5 visited in their family and fondled the children, Cases No. 1 and No. 5. The kitten aforementioned was given to Case No. 4 before he developed the infection and later this kitten became sick and developed a peculiar staggering gait which lasted several days, then recovered entirely.

Case No. 5.—Occurred on July 14 in the family of Case No. 1 and was intimately in contact with all the cases in this group, also with the dog and kitten.

Case No. 6.—Occurred on August 16.

Case No. 7.—Occurred on August 18. Two cases in a family in the immediate neighborhood of all the other cases in this group. (Case No 7 being a typical abortive attack). Both No. 6 and No. 7 were especially in intimate contact with Cases No. 1 and No. 5.



Group VII.

Five cases occurred in this group.

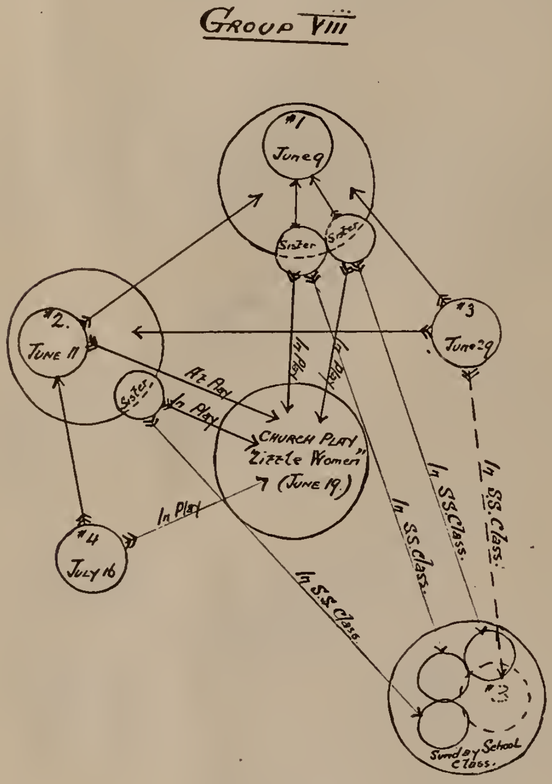
Case No. 1.—Occurred on July 12 and was unrecognized by the attending physician.

Case No. 2.—Occurred on July 15 and was previously in intimate contact with Case No. 1, this case was also unrecognized at the time. Both, however, were reported to the local authorities as positive cases a month or so after their attacks.

Case No. 3.—Occurred on July 23 in the family of a letter carrier who delivered mail at the homes of Cases No. 1 and No. 2.

CASE No. 4.—Occurred on July 31 and was in intimate contact, playing with Case No. 3 and visiting at the home.

CASE No. 5.—Occurred on August 18 in a young adult who gave a history of visiting in the house next door to Case No. 2, in which house Case No. 2 had free access. This young adult came in contact with Case No. 2 in this neighboring house.



GROUP VIII.

Four cases occurred in this group.

CASE No. 1.—Occurred on June 9 in a two year old child. Two of his older sisters took care of this child during his sickness and were thus in intimate contact. These two older sisters took part in a church play called "Little Women." The play was given on June 19, but rehearsals were held twice weekly, commencing on the 19th of April and lasting until the time the play was given.

CASE No. 2.—Developed on June 11 in a boy aged 12, whose sister likewise took part in the church play, and who himself attended the play and some of the rehearsals and visited the home of Case No. 1.

CASE No. 3.—Occurred in a girl aged 11 on June 29, who took part in the church play, and came in intimate contact with the two sisters of Case No. 1 and the sister of Case No. 2 and visited their respective homes also.

CASE No. 4.—Occurred on July 16. He took part in the same church play and there came in contact with Case No. 3, and the sisters of Cases No. 1 and No. 2. He also came in contact with Case No. 2 at his home, visiting and playing with the latter.

Case No. 3 and the sisters of Cases No. 1 and No. 2 were girls of an age (twelve years) and were in the same class in Sunday School.

These groups of contact cases were observed by me in a discrete epidemic of about two hundred known cases of infantile paralysis in a city of about ninety thousand inhabitants. The observations are not as complete as I could wish, owing to the fact possibly that my attention was divided over the whole epidemic zone at the time.

The cases I have observed that present positive evidence of direct and indirect contact with other acute cases must have their own epidemiological value; these represent about 33 per cent of the cases.

In conclusion we may observe that the grouping of cases around some common source of infection is of such a character as to strikingly point to acute epidemic poliomyelitis being a contact infection which would establish the contagiousness of the disease.

The object of this paper is to set down data that will emphasize the fact that acute epidemic poliomyelitis is a contact infection, which we believe has been amply shown in the premises.

Individual contact has been dealt with at length in these groups but we must not loose sight of what may be termed the "Social Contact Factor," which doubtless materially facilitates the spreading power of the infection in any community.

We submit that the evidence is all in favor of acute epidemic poliomyelitis being a contact infection and would warrant our urging that it be handled by the health authorities as such.

Other conclusions are evident from a study of the data before us and need not be summarized here.

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RECENT IDEAS CONCERNING THE DIAGNOSIS AND VACCINE THERAPY OF IRIDOCYCLITIS. REPORT OF A CASE.*

By LEE MASTEN FRANCIS, M.D.,
BUFFALO, N. Y.

Serum Therapy is a process of passive immunization induced for either a protective or curative process by the injection of the blood serum of another animal that has been actively immunized by inoculation with bacterial toxins or bacteria themselves (Diphtheria, tetanus).

Vaccine Therapy is a process of active immunization of the patient brought about by the injection of bacteria or their products directly into a patient.

Bacterial vaccines that are simple emulsions of dead or attenuated bacteria, are not therefore serums (Kohlmer).

THIS subject has been selected, not because I have any essential qualifications as a pathologist or the actual clinical experience with vaccine therapy, to warrant the presentation of this topic. The essential purpose of what follows is the expression of the general dissatisfaction that exists in the minds of many, in the diagnosis and treatment of certain diseases of the eye, and more particularly of the uveal tract, and to call attention to the work of others. To be more specific, at the last meeting of the American Academy of Ophthalmology and Oto-Laryngology, Reber, of Philadelphia, presented a paper based on a study of fifteen cases of iritis (*Ophthalmic Record,* Vol. XV, No. 5), while Brown, Irons and Nadler, of Chicago, a few weeks later presented the results of a study on experimental iridocyclitis in rabbits before the Chicago Society of Internal Medicine (*Journal Infectious Diseases,* March, 1916), and this last week Irons and Brown presented, before the American Ophthalmological Society, at Washington, a study of the Etiology of Iritis, based upon thorough analysis of 100 cases.† I wish here to acknowledge the courtesy of Dr. E. V. L. Brown, of Chicago, who, two weeks ago, placed in my hands a copy of that article. These three contributions furnish, not only the stimulus, but the bulk of the material for this paper. These articles, to my best knowledge, blaze a trail in a field which needs exploration, and foreshadow a refinement of diagnosis and therapy, which augurs much for ophthalmology.

The experimental production of iritis in animals by the intravenous injection of bacteria is of great significance and has a direct bearing upon this subject. In the article quoted from the *Journal of Infectious Diseases,* Brown, Irons and Nadler were able to produce iritis in rabbits by the injection of streptococci procured from a patient suffering from iritis presumably due to an embolic process from an infected tear sac. Streptococci were later recovered in the iris. The following results are recorded: "If one eye of each of a series of rabbits is injured by intra-ocular injection of minute amounts of dead bacteria, and then after the eyes have healed and all active inflammation has disappeared, an intravenous injection of living bacteria is given, there follows an inflammation of a larger proportion of the injured eyes than of the control eyes." Positive results have been obtained with both staphylococcus and streptococcus. Iritis has also been produced by the intravenous injections of B. mucosus capulatus, B. pyocamus and gonococcus. These experiments and those of others, such as Stock (*Heidelberger Oph. Ges.,* 1907) demonstrate that bacteria are carried to the eye by the blood stream, probably as an embolism. These are significant facts in showing one way, at least, in which ocular disease is produced and go a long way toward the establishment of a definite mechanism by which morbid process in the eye have their incipiency.

Perhaps the most striking feature which an analytical study such as these authors have brought out, is the rearrangement in the classification of the etiological factors in diseases of the uveal tract. While the bacteriology of the lids, conjunctiva and cornea is relatively well understood, that of the iris ciliary body and choroid has, for rather obvious reasons, been largely untouched. Indeed, there has been but little variation in the arrangement of this subject in the text-books since the days of Norris and Oliver, and in whose classification, syphilis claims from 50 to 60 per cent of all cases of iritis, and the remaining percentages are occupied largely by rheumatism with gonorrhœa, tuberculosis, the acute exanthemata, intestinal intoxication all occupying minor roles. In the recent studies of the 100 cases reported by Brown and Irons, syphilis furnishes only 23 per cent, while dental infections furnishes 18 per cent, tonsillar infection 16 per cent, gonococcus 9 per cent, tuberculosis 8 per cent, sinus infection 3 per cent, non-venereal genito-urinary 3 per cent, other infections 2 per cent, no cause 1 per cent, combined infections 17 per cent. In Reber's cases 33 per cent were syphilitic. In neither series is "rheumatism" mentioned and in Brown and Irons, no place is given to "autointoxication." What in former classifications would have been ascribed to "rheumatism" have by means of the advanced diagnostic methods of the radiographer and serologist been found due to definite specific infections of either a focal or general nature.

It is quite evident from a thoughtful persual of such data that henceforth diseases of the eye must be approached from different angles than in the past. If future studies bear out the findings of these preliminary ones, in only a quarter or a third of cases will mercury, salvarsan and iodine be the selected therapy, but the alveolar processes, neighboring sinusitis, tonsils will be carefully considered with the aid of the radiographer, rhinologist and bacteriologist. But what about those cases in which no focus of infection from which embolism may emanate are found? In these cases the serologist must be sought.

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* Read at the Annual Meeting of the Medical Society of the State of New York at Saratoga Springs, May 17, 1916.

† Since published, *Jour. A. M. A.,* Vol. LXVI, No. 24, June 10, 1916.

I quote Reber's article mentioned above to the effect that "the spirocheta pallida, pneumococcus streptococcus, gonococcus and influenza bacillus have already been shown to sustain a causative relation to iritis and that there is now to be had complement fixation tests for all of these organisms and in addition the staphylococcus albus and aureus, colon bacillus and micrococcus catarrhalis. In other words, at least these organisms and likely many more must be reckoned with, in searching for the possible causal factors in the production of ocular disease.

The ready inference to be drawn is that in seeking for the cause of disease, our investigations will naturally go into two groups:

1. The search for a possible focus from which infection is transferred to the ocular structures by embolism. Into this group fall alveolar abscesses, infected tonsils, disease of the accessory sinus or collections of pus elsewhere in the body; and,

2. A localized infection in the ocular structures as a part of a generalized systemic process. Into this group falls syphilis, gonococcus, tuberculosis, streptococcus, pneumococcus, staphylococcus, influenza, so far identified and to which other organisms will be added as researches go on.

It must be remembered that infections may and frequently are not due to one single organism, but to two or even more. It is also to be borne in mind that an attack of nonsyphilitic ocular infection may occur in a syphilitic as has been pointed out in the series of Brown and Irons, when in sixteen cases, the disease was relieved by non-luetic remedies, although none of them had responded to thorough specific treatment.

In this discussion tuberculosis has purposely been omitted from consideration and the usual local treatment is assumed.

Therapy.—Therapy of group number one, needs no elaboration at this time for the ground has been well and thoroughly covered. The careful enucleation of diseased tonsils, is a procedure of every day practice, while with the assistance of the radiographer, the localization of apical abscesses is readily done, and readily relieved. The rhinologist and radiographer can, in most instances, identify infected sinuses. The treatment of this group resolves itself largely into the removal of the source of infection, although it is quite rational to reinforce treatment by the means of appropriate vaccine therapy when the specific organisms can be identified.

The therapy of the second group, namely those in which the disease is an ocular phase of a systemic infection, presents features not altogether old. The co-operation of a laboratory equipped to do complement fixation work is essential. While the complement fixation test for the spirochita pallida (Wassermann) is on a reasonably sound basis, that for the other organisms with the probable exceptions of the gonococcus is as yet not so reliable. But when reactions are positive, they are of the utmost value. As Reber has suggested, "If available they should be carried out even if they only occasionally furnish positive reactions." In the same way that the early Wassermann tests were disappointing, which further research and experimentation has done much to clear up, it is reasonable to hope that the present difficulties in the complement fixation tests for the other organisms, will eventually be solved and that their application and accessibility will soon be as universal as that of the spirochita pallida.

Given a positive lead by the serologist, what is the next step? Obviously the selection of an appropriate vaccine. An autogenous vaccine should be used whenever possible. As Kohlmer (*Infection, Immunity and Specific Therapy*, p. 621) points out, "Variants may occur among cultures of the same species, and the injection of one strain may not protect against another as shown by Neufeld for the pneumococcus. In the use of an autogenous vaccine this risk of using an alien species or a different strain is reduced to a minimum." However, there are occasions when valuable time might be lost in recovering the particular infective agent and in the preparation of a vaccine, so that it becomes highly necessary to use a stock vaccine. "In certain infections such as typhoid, gonococcus and tuberculosis, the stock vaccine possesses but slightly less value than the autogenous, while in others such as coli and streptococci, stock vaccines possess little or no value." If the nature of the infection is one in which an autogenous vaccine is acceptable or if the urgency of the case demand immediate measures, a vaccine should be used that is polyvalent, one cultivated from as many different strains as possible. Serologists now recognize that some of the disappointing results of early stock therapy were due to the use of vaccine made from one or few strains.

A discussion of this sort would not be complete, not to say fair, without a word concerning the dangers which might and do arise from indiscriminate use of vaccines. While it can be conservatively said that there are very few instances in which danger may arise, yet it should be brought out that a vaccine is a highly potent substance and should be administered by a serologist. The purpose of a vaccine being to stimulate body cells to greater activity against invaders, there is real danger in over stimulation, and thus defeat the purpose for which remedy is sought. Therefore, the administration should be left to one whose experience qualifies him to nicely judge dosage and frequency. Serologists recognize that vaccines are contraindicted in the presence of diabetes, carcinoma, similarly debilitating conditions, and also in parenchymatous nephritis when severe or advanced.

There is a group of cases in which vaccine therapy is of value, reference to which I do not remember having seen, namely post operative infections whether the result of surgical interference or an introcurrent infection. The point can best be made by briefly reciting a case in my own experience. C. F. M., aged 59, presented himself with immature senile cataracts. The opacities being centrally located and vision reduced to the capacity to count fingers at five feet, operation upon the most advanced (left) eye, was advised. Twenty-four hour urine sample was normal, clinically and microscopically (Spec. grav. 101s. Total solids 62 grms. urea .32). Blood pressure 150. The patient gave no history except of excellent health, which his general appearance substantiated. Conjunctival smears were free from strepto and pneumococci, showing the normal conjunctival flora. The patient was admitted to the Buffalo General Hospital on February 17, 1916. A preliminary capsulotomy was done according to the method of Homer Smith following our routine local preparation (consisting of shaving eye brows, trimming lid, scrubbing up the ocular region with green soap, flushing the conjunctival sac fully with bichloride 1-5000, followed by a moist compress of the same to the ocular region). The next afternoon, a simple extraction was done without incident. The next day the eye was inspected. The patient had been very comfortable. The cornea was bright, anterior chamber reformed, pupil round and free. The second day upon making rounds, the nurse reported the temperature as 99.6 and said the patient had since morning complained of slight sore throat, discomfort upon swallowing and a general feeling of malaise. There had been no chill but the patient expressed it by saying "he felt as if he were coming down with a cold." The tonsils were swollen and congested but with no spots. The left cervical lymph nodes were slightly enlarged and palpable. Upon inspecting the operated eye, the anterior chamber was partly filled with blood, the iris appeared muddy and slightly discolored and the pupillary space murky. The line of corneal incision was entirely clear and union absolute. Atropine was used freely. Leeches applied to the temple, calomel, heavy doses of salicylates and calcium chloride ordered. Upon the next day (third) no particular change had taken place except for an increase in the blood in the anterior chamber. The temperature had dropped to normal and the malaise had disappeared. However, there was a decided swelling of several of the meibomian glands of the upper lid on the operated side. With massage, it was possible to express tiny droplets of pus from their orifices. Cultures were immediately taken for preparation of an autogenous vaccine. However, the urgency of the case was such, that it was decided to use a stock vaccine. Accordingly under the advice of Dr. B. F. Schreiner of the hospital staff, one-half billion of a mixed polyvalent staphylococcus vaccine was given, with the most astonishing results. Within thirty-six hours the hemorrhage had all but disappeared from the anterior chamber, the iris was much clearer and the pupil began to respond to atropine, becoming half dilated, while there was a corresponding increase in the patient's vision. To shorten a long story, three weeks later the patient's corrected vision was 6/75 (+10.50sp. = + 2.50cy. ax. 180), with a thin secondary membrane.

While this case may be regarded as a surgical infection, I felt that the ocular process was embolic, the entrance of which into the blood stream was through the tonsils. The patient's history of general malaise, appearance of the tonsils, lymph nodes, the appearance of meibomian infection, and the absence of disturbances along the corneal incision seem to me to point to the soundness of such an opinion. At any rate, I credit the saving of an eye to the administration of substantial doses of vaccine as given by Dr. Schreiner.

The placing of diagnosis and therapy of irido cyclitis upon a rational basis will naturally lead to a study of choroidal diseases along the same avenues. Of the same structural unit as the iris and ciliary body, affections of the choroid should lend themselves to similar experimental investigation. It is quite within the bounds of reasonable hope that this work upon the iris and ciliary body will soon extend to the rest of the uveal tract. It is safe to predict that many of our time honored, if not hide bound notions concerning the etiology of choroiditis will undergo changes similar to those that are taking place concerning the iris and ciliary body.

Summary.

Studies such as those of Reber, Brown and Irons make it quite apparent that the former classifications of the causes of uveal disease must be rearranged and that what has been termed rheumatic iritis is a blanket name covering a group of specific infections. Syphilis likely plays a less prominent role in disease of the uveal tract than was formerly supposed. The diagnosis of a particular case, entails a consideration, not only of syphilis, autointoxication, but the search for a possible focus from which infection may be transferred to the eye by embolism, and particularly the tonsils, alveolar processes and accessory sinuses. The complement fixation tests for gonococcus, pneumococcus, streptococcus, staphylococcus, albus and aureus, B. influenza, B. coli and micrococcus catarrhalis are now available and should be made, and if a positive reaction is present, the appropriate vaccine should be administered. Post operative or intercurrent surgical infections may offer a field for vaccine. Serologists are agreed that in every instance an autogenous vaccine is safer and more certain than a stock vaccine, but that in some infections the stock vaccines compare favorable in action with the autogenous. The administration of vaccine is without danger when in proper dosage and in cases when not clearly contraindicated by serious disease or kidney impairment. Vaccines should be administered under the guidance of one trained by experience in their use.

Discussion.

Dr. Wendell Reber, Philadelphia: I think we should all feel indebted to Dr. Francis for his careful, thoughtful presentation of this subject, which is bound to come prominently before us. Certain things stand out. So far as external or extraocular diseases are concerned, I am for absolute specificity (when the same can be obtained) as indicated by the presence of one or more well defined organisms in the conjunctiva, lacrimal passages, cornea or nasal passages. I believe the autogenous vaccine is the vaccine of election in case we are not confronted with too formidable or fulminant a condition. When we come to consider the intraocular conditions, we are met with a peculiar difficulty. We have no access to the focus of infection, and we are obliged to resort to other means of ascertaining the infective organism or organisms. Therefore in the intraocular inflammations, we are obliged at present to fall back as largely as we may upon the complement fixation tests. We must frankly admit that those for the pneumococcus, the streptococcus and the staphylococci are not as reliable as the complement fixation of Wassermann, as the gonococcus fixation, as the bacillus coli fixation, which is quite as satisfactory, if not more so, than the Wassermann. It is a very pronounced one. Nevertheless I still aver that I think it is our duty to secure this list of complement fixation reactions. Also, in this class of cases, the use of an autogenous vaccine is a manifest impossibility, so that we are compelled to fall back upon stock vaccines for treating organisms. First, because an autogenous is not procurable. Second, because of the generally fulminant character of the inflammation.

For instance, in three cases of gonoccocal iritis, one of them occurring about three years after the primary urethritis, one sixteen years after, and another one we don't know how many years after the primary lesion—(she was a grandmother)—all of them gave definite gonococcus complement fixation reactions, with a negative list for all the rest. Our therapy was based upon this indication by the serologist. The results far outran anything that we ordinarily see following the usual therapy. We are all familiar with the tendency of iritis to run a three weeks' course. But when an iritis of fulminant character absolutely melts away in two or three days, with complete cessation of the pain in four to six hours,—much as it would appear after morphia,—it gives us pause.

Also, it is a duty if not a pleasure to record failures, as indicating that the method is not universally successful. In a recent case, a gentleman who had returned from Russia,—who was selling vaccines to the Allies and the Central European Powers (as he could get at them)—developed an iritis about five weeks after he reached home. He was forty years of age, a bachelor, and lived to the flesh with all his might and main. Very naturally, because at the same time he had an acute eruption over the buttocks he presented an almost perfectly plain clinical diagnosis of luetic iritis. However, we asked for a specimen of the blood; and to our surprise the Wassermann and the Neisser reactions were absolutely negative. And we then learned that a genito-urinary surgeon under whose care he had been about ten days previously for the eruption, also found absolutely negative Wassermann and Neisser. So we had two independent observations, identically negative. I was somewhat nonplussed, and I looked at his eruption again, which was not a characteristic syphiloderm. And yet though I am not a dermatologist I ought to have classified it. All that I could say, and my associates could say as we looked at it was that if one should see this in a man in a lower stratum of life he would say that it was probably parasitic. And when Dr. Schamberg was called in, he said, "A most beautiful and picturesque example of scabies which he had probably brought home from some foreign bed in which he had slept."

Then we elicited the clinical history that a year and a half before he had had a luetic infection in Russia, had had four treatments with salvarsan, also had had a series of mercurial rubbings for a month, and had been told that he was absolutely safe, and that he need never again consider the possibility of a recurrence of the condition; that, coupled with the negative Wassermann, induced him to hold his tongue. Incidentally, he had been treated by Dr. Jno. Morley Marshall for a pneumococcal sinusitis of which Dr. Marshall had made a bacteriological diagnosis. Basing our action on this assumption we gave him a pneumococcic vaccine. At the end of twenty-four hours he was distinctly worse. Twenty-four hours later we called up the genito-urinary surgeon, and he said, "I would advise that you add some gonococcus element to the vaccine the next time you give it to him, on the clinical findings alone." This also was done. Forty-eight hours later his anterior chamber showed a fine, milky-white, flocculent, spongy exudate, of a spongy, iritis character. He was distinctly worse. He was then sent to the hospital, was given one-sixteenth of a grain of biniodide of mercury every two hours for twenty-four hours, and was sweated, and inside of a week his vision, which had fallen to one-sixtieth, returned to five-twentieths. On straight antisyphilitic medication he made a perfect recovery. I had asked for a spinal Wassermann in the case, and I thought it was done at the hospital, but it had not been. I rather think the spinal Wassermann would have been positive. It is just as well to record our failures.

I should like briefly to recount the features of an influenzal case, of a man who presented a typical plastic iritis of the type with which we are all familiar. He was a railroad man, and although he was married and had three children, his general physician said that, on suspicion, he thought probably it was syphilitic. Now, that reflects the attitude which obtained in the Wills Eye Hospital when I first came to Philadelphia. The usual question was, "How long since you have had it?" "Why, I haven't had an infection," was the usual reply. "Oh, very well." Then they gave him mercuric, anyhow. And if he wasn't better at the end of ten days or two weeks, they gave him salicylates and said it was rheumatic. That is the thing we are here to preach against.

The complement fixation reactions were taken in this man's case, who averred that so far as his knowledge went he had never had an infection. They were all negative, with the exception of a faintly positive influenza reaction. He was therefore given the influenza mixed bacterin, and inside of sixty hours was practically a well man. He went back to his general physician, who adhered to his primary ideas, placed him on mixed treatment for three weeks, when the man broke out into a beautiful florid recrudescence in the same eye. He appeared in my office again, had another influenza bacterin, cleaned up in forty-eight hours, and has never had a manifestation of it since (about a year).

Recently, a pyorrheal case, negative through all the reactions; mouth positive to streptos, pneumos, and a few amebæ. The X-ray showed numerous apical abscesses and extraction was done according to the dental findings. Streptococcus mixed vaccine produced an absolute recovery in seven days. Vision of six-sixths, and perfectly clear media.

I believe in autogenous vaccines, if you have a specific basis for them. When they fail, I believe in stock vaccines. For intra-ocular conditions, one firm of which I have knowledge uses 85 strains of staphylococci, 63 different strains of streptococci, and about 40 strains of gonococci, to make them as polyvalent as possible.

Then there is autoserotherapy. In one case of iritis, about two years ago, we used a blister, withdrew the serum, introduced it into the man's arm, and practically reduced his iritis in three days. He had a particularly quick recovery. Strangely enough he showed symptoms of serum disease. Why anaphylaxis goes with autoserotherapy I am not ready to say.

As to post-operative cases, such as Dr. Francis has spoken of, I have had one cataract case, in one of our prominent citizens in whom, I am glad to say, I believe I saved the eye by the same kind of medication.

One other case—if I may, before I close—of a woman with a diabetic cataract, in the practice of one of my associates, who has been studied for a year and a half. Conjunctiva apparently normal, with usual skin coccus and some xerosis bacilli. Finally getting her sugar down to about one and a quarter per cent, a preliminary iridectomy was done. On the seventh day she developed a violent iritis. At this time, at my suggestion—why he had not done it before I don't know—my assistant had a complement fixation done, and the report came back four-plus Wassermann and four-plus Neisser. Which was it? Was it the diabetes? Was it four-plus Wassermann? Was it four-plus Neisser? He put her on Donovan's solution, but hesitated to use salvarsan because her kidneys were none too good.

And then one final word, of course, as to the choroid. I am hoping that in the investigation which we are going to undertake for the American Academy of Ophthalmology (which we want to extend to at least 500 cases), that the choroid will be included. Histologically, we are dealing with what is practically a unit structure. We have guessed at the etiology of our cases of choroiditis for twenty-five years. And we would like, if possible, to get them on a better etiologic and medical basis.

As to the complement fixation reactions, they are all done on the Wassermann basis. It is more difficult to get antigens for certain of them than for others. That is the reason why the gonococcus complement fixation basis has been on such an unreliable basis. But each day they are making it more and more perfect. And, I believe, inside of a year it will be quite as reliable as the Wassermann reaction. The same may be said in regard to the pneumococcus and the streptococcus fixation reactions, although I believe we are going to be longer getting them on an absolutely definite basis. Bacillus coli, as I have said, is absolutely definite.

Dr. A. Edward Davis, New York: First I wish to speak in regard to some choroidal cases. Three years ago I reported three or four cases of choroiditis that had been traveling around without improvement. I presented these cases before the Pacific Coast Ophthalmic and Ophthalmological Society. Looking around for cause for these cases, which I say had not been improved at all, I finally had the teeth examined. In every case, without failure, we had the streptococcus, viridens chiefly. For one of these cases I had autogenous vaccine made. The others, I did not. I had them all treated, of course, locally. Two of the cases had had pyorrhea alveolaris. Two of them were due to infection from an improperly filled tooth. Taking these fillings out, treating the case, these people got prompt relief. The same occurred in the cases of pyorrhea alveolaris. It has been three years ago that I reported these cases, and I am happy to say that every one has been quiet since, and that the percentage of vision that they had at that time has been maintained. I have never failed in any of these uveal tract cases since then to have the teeth examined. One of these cases, who happened to be a doctor, came here from California, who was a very good bacteriologist himself. He said he thought the mouth was the dirtiest cavity about the body, judging from the different variety of germs present. And I don't know but what he is pretty nearly correct.

In my remarks I assume that the author of the paper has considered both *passive* and *active* immunization under the title "Serum Therapy," and as my experience has been largely in the field of active or vaccine immunization I shall confine my remarks to this phase of the subject.

1. *Streptococcus and Pneumococcus Infections.*—In acute streptococcus and pneumococcus infections of the eyelids and conjunctiva I have had invariably good results. In one case of a particularly virulent infection of eyelids from a wound (streptococcus and pneumococcus) which extended to the orbit and also to the side of the face and down the neck, I am convinced that, by the prompt and active vaccine treatment (the first dose being polyvalent vaccine, the following autogenous), the patient's eye was saved with good vision, and even the life of the patient safeguarded.

With corneal ulcers of pneumococcic or of mixed pneumococcic and streptococcic infection my experience has not been so favorable; and I do not rely on the vaccines for a cure —but use the cautery and antiseptics, as is the custom, I believe, of most ophthalmic surgeons. In fact, in these serious corneal infections the vaccines and surgical and antiseptic means should all be employed. Unquestionaly the most brilliant results obtained by serum or vaccine therapy have been secured by the use of antitoxins in diphtheria and tetanus—that is by passive immunization.

Next important to these results are those obtained by the use of the tuberculins.

Surgical and chronic focal tubercular infections are most suitable cases for the successful use of the tuberculins. Before beginning treatment a correct diagnosis is imperative. In passing, I may say that in all suspected cases, I first use the von Pirquet test, *both* in *children* and in adults, always followed by the subcutaneous injection when the von Pirquet is positive, unless the von Pirquet is highly positive, that is with all three phases of the reaction, local, focal and general. If the von Pirquet is negative, usually the case can be dismissed as non-tubercular. I hold the same opinion in regard to the von Pirquet test as does Dwyer, that is that "a negative reaction when the technique is correct is of great help no matter what the age of the patient may be."

Having made a diagnosis the next important step in tuberculin treatment is to decide on the interval between the doses and the size of the dose. I always try for a mild general reaction which is manifested by a slight rise in temperature and sometimes by a slight malaise. At no time should a greater rise than 1 degree F. be produced by the injections. Safety first is always to be borne in mind in these cases, and especially so if the retina choroid and optic nerve are involved. A severe reaction in these tissues is likely to do much harm.

Individually I prefer the B. E. (bacillen emulsion) mixture for therapeutic uses, and next to that the O. T. I use the Mulford serial dilutions and always begin with 2 min. of vial No. 1, and increase 2 min. a dose, at intervals of five days to a week, until a general reaction is obtained as indicated by rise in temperature. If no reaction is obtained when 20 minim dose is reached, then the next vial is begun, 2 min. and 2 min. increase, etc. When a mild reaction is obtained the dose should be held at this till they cease to react, then gradually increased again. The treatment should be kept up for weeks, months or years, as the case calls for.

Perhaps a word of caution should be given in regard to these cases in which a "negative phase" reaction is brought about. Here we have a fall in the temperature and often a decided depressive effect on the patient. Tuberculin treatment is contraindicated in such cases. Already there is too much antigen in the patient's blood (as in acute cases), and to throw more into it is only to invite disaster. Too frequent and too large doses of tuberculin may bring about the negative phase, hence it is always necessary to be more careful as to the *interval* between doses, the *size* of the dose, and ever and always keep a most careful record of the patient's temperature. The patient soon learns to keep correct temperature records.

There is a point that I would like to speak about. When we first began these treatments, we thought we should place patients in the hospital. I grant that is necessary in making the diagnosis that three or four days should be taken for the temperature records; and then, while getting the reaction, the patient should be in the hospital under observation. It is not necessary to keep the patient in the hospital for treatment.

Dr. Edmond E. Blaauw, Buffalo: I think the meeting will be all in favor of serum therapy. But there is a majority and a minority, and I am sorry to say I belong to the minority. I am a little bit of a skeptical mind; and I have only been at least twenty years in this business, and I have seen some phases come and go.

I would point rather to a few drawbacks of this whole subject. First of all, I think we ophthalmologists aren't competent to judge fairly. We should have a combination with the pathologist, and certain men who do a great amount of bacteriological work. Because, for instance, one subject strikes me since this thing has come up, the amount of percentage of information on the whole iritis has as far increased greatly in some lines, and in some others absolutely nil.

Now, it is an accepted fact—I don't want to go too far, but let me say 50 per cent of the males are infected once in life with gonorrhea. And still, in the amount of iritic patients I have seen, I have not seen a percentage that would be in any comparison with the 2 per cent of syphilis.* And we see a great deal more of syphilitic infection of the eye.

The very interesting thing—this is one of the little questions that I want to speak about too—is that serum therapy in ophthalmology began against pneumococcus infection. But there is no one at present talking about pneumococcus serum. Yet the sera are spoken of as "the panacea," et cetera. And we should use it! I want to criticise that new alimen. We do overlook that there is an instrument which we call "corneal microscope," and that we can learn to differentiate forms of iritis. We should differentiate between a parenchymatous and a superficial form, etc. That is, of course, not saying that these observations sprung up yesterday or the day before, but that it has gradually come. And coming, it has elucidated this subject, and beautifully.

And I think we ought to study the clinical phases of the iritis far more. What do we get for results? The patient comes into the doctor's office; complains about iritis to the doctor. The doctor says, "Oh, that is rheumatism. You need stock vaccine." "Yes." He gets some; that goes on for two weeks. He is not satisfied; suffers a great deal; goes to another. "Oh, you have (of course) been wrongly treated! I can help you. You need serum." With all that talk, that man was for three months under treatment, and lost vision up to counting fingers at one foot.† Where, if you had used simple, common sense, you would have said "That is syphilitic iritis." You would have given the man right away what he needed;—today the vision is six-ninths.

Also, next we will get into the meetings the question about the lumbar puncture! Heine has found in—I don't know how many—cases of corneal Herpes and God knows what, the cerebral pressure higher with lumbar puncture. And I am wondering that this subject has not come up yet here.

Dr. Francis: In closing, I am very grateful to the men who have entered into the discussion of this paper and particularly to Dr. Reber, who has come from Philadelphia, to aid in making a more profitable presentation of the subject. I had hopes that this would turn into an experience meeting, as it has. I have nothing in particular to add except to emphasize the fact that in presentating this subject, I did not in any way mean to minimize the necessity for careful clinical observation. Obviously,—and I am now sorry that I did not bring the point out more clearly—vaccine therapy should be under the control of a trained serologist, and there should be absolute co-operation between the pathologist and the ophthalmologist.

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* Which exist in the population at large.

† And the doctors advised enucleation.

THE EYE IN GENERAL PRACTICE.*

By H. W. COWPER, M.D.,
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THE subject naturally divides itself into two parts: First, the aids that a general practitioner secures from his examination of the eye (note I do not say the aid he receives from some one else's examination), and second, the abnormal conditions of the eye of which the general practitioner should have the care.

For diagnostic purposes the man in general practice should limit his examination to inspection. As inflammatory states are not within his province there remain but two or three conditions to be spoken of under the first heading.

Exophthalmos.—This is uncommon when not due to Graves' disease. If seen it should make one think of Bright's disease. About half the cases of chronic nephritis show more or less exophthalmos. The theory is that the toxins irritate the cervical sympathetic.

Nystagmus.—This is common enough unfortunately as a congenital anomaly, and is of no especial interest in this connection. Coming on later in life it is a very important symptom because of its frequency in insular sclerosis. With nystagmus present, and excluding abnormalities of the middle ear, disseminated sclerosis should be the first thought. In examining for this the patient should be directed to turn his eyes as far as possible to the side, for it may become evident in this position when there is no sign of it while looking directly ahead.

Lids.—Familiar enough are the squamous and pustular lid conditions frequently due to refractive errors. Also the ecchymosis following head injuries as an indication of basal fracture. A swelling which crackles on pressure is not so common. It sometimes follows a slight injury or even a strenuous nose blowing. This emphysema indicates a slight fracture into one of the accessory nasal cavities and is not usually a serious occurrence.

The bright red spontaneous hæmorrhage on the ball itself under the loose conjunctiva and sharply limited at the corneal margin is not of great significance, the opinion of others to the contrary nothwithstanding. It has been said to be a warning of cerebral hæmorrhage, and patients have been told of their narrow escape, for had it occurred inside instead of outside it would have caused death. Having seen it in the young and middle aged more frequently than in those of advanced life, to my mind it is of little importance. The staining of the conjunctiva due to drugs I trust you have never seen. It is well, however, to remember that long continued use of argyrol and protargol will cause a permanent yellowish discoloration. And these drugs are coming to be more and more self-prescribed by the laity. There has been noted also a bluish color which was permanent and which was attributed to the prolonged use of coal tar derivatives in headache powders.

Pupils.—These are examined as a matter of routine. In testing for the light reflex the patient should be looking at a distant object. Often he is found looking at the examiner. A moment's thought will show that this is not proper. Do not attach weight to slightly unequal pupils. This statement does not accord with the customary teachings. Marked difference in the absence of refractive error and where trauma or the use of drugs can be excluded and where good vision is present, should cause suspicion of central nervous trouble. Marked contraction of the pupils with no other symptom should prompt the watching of the patient for the development of signs of spinal cord disease. Marked dilatation is not uncommon as a result of the home use of eyedrops or the accidental instillation of a preparation containing a mydriatic. This should always be the first thought. Argyll-Robertson should mean just one thing—syphilis—manifested either as a tabes, a general paralysis of the insane, or as syphilis of the brain. I am aware that other conditions are said to produce this pupil and I am also aware that it has been demonstrated in a patient who for over fifteen years subsequently developed no other sign or symptom. Notwithstanding this it will be safe to consider this pupil the result of a pathologic process and the primary cause of that process as lues.

As to the second part of the subject. How far should the general practitioner go in the prevention and treatment of eye abnormalities? The watchword today is conservation. Bird life, game, forestry—and the idea is beginning to be applied even to the human. We have active societies for the conservation of vision. So far conservation is practically synonymous with prevention. In prevention it seems to me there is a field that has not been entered. I refer to the home life of the individual. We not infrequently see children whose corneæ are so badly damaged that many occupations are closed to them throughout life. A percentage of this damage could be prevented by the influence of the family physician in promoting proper hygiene, especially as regards diet. These cases are not confined to the poor, though it is in this class that the permanent evil results are usually found. The chronicity of these phlyctenular conditions possibly leads to contempt for them on the part of the parents, reliance being placed upon that panacea boric acid. To my mind boric acid has been responsible for far more harm than good. It is a home remedy upon which for days reliance has been placed for a "cold in the eye" which needed the energetic treatment called for in ulcers or iritis. Further, in this day of forced draught the child's physical economy is forced to overcome a heavy handicap in the home school work. It seems to me to be within the province of the family physician to oversee the conditions as regards light, heat and ventilation of the room, and the position of the child during this home work. To many of you it will seem that I am stretching the truth a little when I say that a cross eye appearing in a child from one to three years of age is sometimes neglected upon the advice of the family physician. Such eyes cannot be refracted at too early an age. It is the serious question of preserving the sight in an eye that otherwise would probably become practically useless.

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*Read before the Medical Society of the County of Erie, at Buffalo.

I shall not rehearse the well-known symptoms of eye strain, but in this connection it seems pertinent to say that normal vision does not preclude eye strain, and that certain troubles coming on during the early school age should at least cause one to think of the eyes as possibly responsible. Restlessness, irritability, gastro-intestinal disturbance even going so far as the so-called bilious attack, may be reflex from eye strain and be present with normal vision.

So much for prevention. Now to refer to eye cases over which the man in general practice should have temporary or permanent control. Perhaps of the specialities ophthalmology has become most widely separated from general practice. So much so that in the space thereby left there has grown up a dangerous group of pseudo-practioners who have become so strong that they have succeeded in having granted to them a state licence to practice a part and a part only of medicine. I refer, of course, to the so-called optometrists. They are doing a work that the family physician should do.

The science of medicine broadens almost from day to day, and the unskilled and unfitted are continually attempting to break into the practice of it by short cuts. It might be likened to a redoubt manned by an insufficient force; a fortification which must be daily extended with ever a greater area to be defended. Serious breaches are made from time to time. There come to mind at once the unchristian scienceless group, the doctor rubbers, and so forth. It is my effort now to persuade you to defend a breach which is becoming more and more serious—that made by the so-called eyesight specialists. There is but one method of defense that promises any degree of success. The general practitioner must refract the members of his own families at least so far as this can be done without the use of a mydriatic. For those of you who are among the older men, who have possibly reached that enviable stage where your practices are largely those of consultants this suggestion is not applicable. But from the practices of such men the opticians draw little if any work. In order to enlist your support you should be convinced that, *firstly* it is to your own advantage, *secondly* it is to the advantage of your people, and *thirdly* you can easily become familiar with the proper procedures.

Firstly, as regards your own advantage. Another qualification is added which attracts business, if I may use the word in connection with the practice of medicine. You keep your own patients under your own observation throughout a distinctly medical line of treatment. This is indirectly profitable financially. It is directly profitable in two ways. With a little practice you can make such an examination as the optician makes in the time of an average office call. Surely at least the regular office fee may be charged. You may then supply the glasses, having them made by a jobber at his price and letting the patient have them at the usual retail figure. The profit is legitimate and your people are sure of getting what they pay for which is far from the case in the business treatment accorded by many jeweler opticians.

Secondly, as to the patient's advantage. Let me cite two or three typical cases which I recall from my own experience. Although I have not spoken to any of my specialist colleagues on the subject I cannot but be sure that they will bear me out in the statement that there are many such. "A" allowed herself to be refracted by a nonmedical man who styles himself doctor, and holds forth in a jewelry store. Her vision was very much diminished and no lens would improve. Feeling that she had done all that she could she let the matter stand for three months. There was a terrific albuminuric neuroretinitis.

To explain his inability to better "B's" vision an optometrist informed the man that he had cataracts and advised him to return repeatedly for a line of treatment consisting of hot and cold water applications at a dollar per treatment. There was no cataract. His lenses were perfectly clear but he had beginning optic atrophy.

"C" was a youngster in her teens, nearsighted and going to school. Her myopia had been over corrected by a considerable degree. There is no greater error in refraction than that of over correcting a myopia. Yet we see this often enough, as we see myopic lenses before hyperopic eyes.

"D" had chronic glaucoma. For the past four years she has had repeated changes in her lenses by one of these men who show their certificates from this great state licensing them to practice this part of medicine. During this time her vision was becoming steadily worse until the right had practically no vision and the left about one-third of normal. An iridectomy has maintained her vision in the left so it may be assumed that such result might have been had in the right by like treatment early.

Do not understand me to claim that in all such cases as those mentioned the eyes could be saved by medical attention. But certainly a good proportion might be and they would all have the chance given them to which they are entitled. Supposing each of these people had gone to his own physician to have his eyes examined. Would he have been given glasses and sent on his way? You have at heart the best interests of your patient who is your friend and whose family are your friends. This with your medical knowledge would dictate the proper course at once. The optician is dependent on his sale of glasses for his rent and living, and too often this becomes the first and remains the only consideration. There is no doubt in my mind that the optician is attempting to supply a want that is urgent and which at present there is no other way of filling. But the optician is not the proper agency. There is a large class made up of people who need glasses and realize it themselves. A simple correction of manifest errors answers the purpose and they do not feel the necessity of giving the time to the examination of an ophthalmologist (if they know that such an individual exists—and many do not), nor do they see the need of paying the ophthalmologist's fee. The demand of this class is very real and very great. And the demand should be met by the family physician.

How far should you go? Should your examination include the use of a cycloplegic? Tests for muscle imbalance? The use of the ophthalmoscope? The cycloplegic should be used if you have the time, especially with patients under forty. The muscle tests are simple enough, but to properly estimate the effect of any particular imbalance is not so simple, and this question had better be left to the oculist. As far as the ophthalmoscope is concerned I am strong in the belief that it should not be used for the purpose of diagnoses, except by one who has had large experience with it in pathologic as well as normal eyes.

If you are not familiar with the methods for ascertaining the manifest refractive error permit me to assure you that this knowledge is not difficult to obtain.

Now as regards injuries and diseases of the eye, I confess that I differ from many ophthalmologists whose articles read before men in general practice have gone into the details of diagnosis and treatment of such acute inflammatory conditions as iritis, glaucoma, etc., and even so far as to give the proper operative interference in cases of injury. The responsibility is often enough a heavy one and I think it is not within the sphere of work of the general practitioner to assume it. However, there are conditions which present themselves to his notice first as a matter of course. One or two of these I shall briefly mention. He may be called at night to see one of his people whom he finds in a greater or less degree of prostration. The general symptoms, such as nausea and vomiting, violent headache and state of collapse, may hide for a time the hard red eye of acute glaucoma. The one contraindication is the use of atropine.

Injuries frequently are seen first by the family physician. If they are superficial ordinary antiseptic treatment is usually all that is called for. But for the more serious accidents such as chemical burns and perforating injuries the indications are not so easily met. And so far as immediate care goes I think that thorough flushing with sterile water or weak bichloride meets the demand. The teaching often is to instill atropine at once. But atropine has been an over-used drug in eye practice, and it is sometimes proper procedure to use a drug with just the opposite effect upon the pupil in perforating wounds. There are many oculists and there are many eye dispensaries, and one of these should have the responsibility. That which is of paramount importance in many cases is to shorten the time between the injury and the proper treatment.

ENDOSCOPY OF THE ESOPHAGUS AND UPPER AIR PASSAGES IN CHILDREN.*

By CHARLES J. IMPERATORI, M.D.,
NEW YORK CITY.

THE method of autoscopy as suggested by Kirstein some fifteen to eighteen years ago, and developed by Killian, of Frieburg, was a decided advancement in our methods of exact diagnosis and operative procedure.

To Bruning and Kahler we are indebted for the improved Killian instruments, while to Jackson, of Pittsburgh, and Ingals, of Chicago, we owe a great deal for pioneer work in endoscopy in the United States. The refinement of instruments and exact methods of technic so highly developed and explained in such detail by Jackson have simplified endoscopic procedures considerably.

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* Read at the Annual Meeting of the Medical Society of the State of New York at Saratoga Springs, May 16, 1916.

Laryngology is indebted to Einhorn, of New York, for his light carrier on his esophagoscope. It was from this that the distally illuminated instruments were devised.

The Killian, Bruning and Kahler instruments are either lighted by a headlight or by the method known as "Proximal" lighting. There are a great many advantages that both types of instruments possess. Although the writer has used the Bruning instruments for some time, he is inclined to the Jackson or distally illuminated instruments.

To Killian we are indebted for the device known as the Suspension Laryngoscope. In children the use of these various devices for examination, diagnosis and instrumentation are decidedly useful and in the great majority of instances are easier of application than in adults.

To examine the larynx in a young child or infant the old or indirect method was well nigh impossible, and, of course, the visual examination of the esophagus, even the upper part was not to be considered. Digital examination being the method practiced in the vast majority of instances, and then only the oro-pharynx and the laryngo-pharynx were examined. In children it is possible in a great number of cases to examine the larynx by the indirect method, but at best we get but a fleeting glance of the parts.

The visual examination of the esophagus, trachea and bronchi cannot be done by the mirror, and in order to properly study these parts, we do so by the use of various spatulæ and tubes.

Examination of the larynx by the direct method usually presupposes that the indirect method has failed—either in that the child will not permit the examination, or that the examiner cannot properly see the larynx.

Indications for Examination of the Esophagus.

Dysphagia and aphagia coming on acutely is significant of a foreign body in the esophagus. There are cases of retropharyngeal abscess, that have produced acute symptoms of dysphagia; usually, this condition comes on less acutely and is more often associated with other symptoms accompanying an inflammatory condition.

Stenosis of the esophagus from cicatricial contraction, produced either by acids or alkalies will produce symptoms of dysphagia in varying degrees depending on the amount of contraction of the lumen.

In this type of cases as indicated by Jackson in his work entitled "Peroral Endoscopy" the examination of the esophagus should be done with extreme gentleness and had better be deferred, if there is still ulceration of any size, because of the danger of perforation.

Gastrostomy should be done, if there is marked inability to get food or liquids into the stomach; this puts the esophagus at rest and permits the inflammation to subside and the ulcerations to heal.

Esophagoscopy.—The study of the cricopharyngeal constriction, a term suggested by Jackson, for what the older writers and anatomists designated as the "mouth of the esophagus" is of paramount importance to one who will practice esophagoscopy.

To quote from Jackson, "The cricopharyngeal constriction and the fact that it is caused by the inferior constrictor was recognized by Mikulicz; but it remained for Killian to demonstrate that only the circular fibers were concerned."

In order that the pyriform sinuses and the neighborhood of the cricopharyngeal constriction be properly examined the child's esophogeal spatula of Jackson is the instrument of choice. The Johnson instrument, modified from the original Jackson spatula is a very useful instrument in children and especially when examining the upper end of the esophagus.

Esophagoscopes used in the upper esophagus usually make the examination more difficult and one may easily pass beyond the point desired to be examined. After introduction of the speculum by sliding it down the dorsum of the tongue—the patient being either in the sitting up or recumbent position (the latter position being preferred), the epiglottis is passed. Then, pass directly into one of the pyriform sinuses. The beak of the instrument is guided toward the median line, and is now behind the larynx. With a slight lifting and downward motion it will be found, that we have apparently come to a blind pocket, that may open with each respiratory movement, provided the beak of the instrument is sufficient far down in the esophagus.

On introducing the speculum still further it will be found that this muscular wall gives way, but that the posterior portion glides into the open part of the speculum. If the speculum is pushed down still further we obscure our light and we cannot see. This fold of the posterior wall is the cricopharyngeal constriction and is about 7 to 12 cm. from the upper teeth, depending on the age of the child.

The greater number of foreign bodies are situated just below this constriction. In order to see properly after having introduced the speculum and the posterior wall appears to have dropped into the open part of the instrument, a slight lifting movement is exerted and a strong forceps that is sufficiently stiff is introduced, and this posterior wall pushed backward. If there is too strong a lifting movement anteriorly the constriction gets tenser and it is more difficult to push backward. By this manipulation the upper end of the esophagus is straightened out and some of the shelf-like arrangement of the crico-pharyngeal constriction obliterated.

"Over-riding" as shown by Jackson usually takes place when foreign bodies are lodged just below the constriction and one uses an esophagoscope.

To pass the 7 mm. or child's esophagoscope, and to examine the whole length of the esophagus, the "high-low" method as suggested by Jackson is used, and for the details of this procedure, the reader is referred to Jackson's work on "Peroral Endoscopy," pages 187 to 193.

X-ray examination is of great aid in localization of objects within the esophagus.

Roughly speaking foreign bodies lodged in their long axis, laying sagitally, may be considered within the trachea, while those bodies that appear to correspond to the plane of coronal suture may be said to be within the esophagus; this is particularly so with coins and buttons or other flat objects.

INDICATION FOR EXAMINING THE LARYNX AND TRACHEOBRONCHIAL TREE. HOARSENESS, COUGH AND DYSPNOEA BEING THE MAIN SYMPTOMS.

First.—Those cases of sudden dyspœna, due to a foreign body; although cases of laryngimus stridulus in spasmophilic children gives rise to the same symptoms, and may be due to an adductor spasm, the dyspnœa passing off in a short time, to recur at varying intervals. This same condition will occur in those cases of diphtheria that have been intubated, and who auto-extubated themselves. These cases frequently get attacks of laryngeal adductor spasm. Of course, these cases must be re-intubated immediately.

Second—Those cases of acute hoarseness accompanied by dyspnœa, in a child or infant are usually indicative of acute inflammatory reaction within the larynx and may be due to diphtheria or extension of an inflammation from the pharynx such as an acute tonsillitis, retropharyngeal abscess, etc.

Third.—In hypertrophic laryngitis following any cause, hoarseness is usually the predominating symptom with more or less dyspnœa. In papillomata the onset of hoarseness is gradual. In diphtheritic stenosis following prolonged intubation hoarseness or aphonia and dyspnœa may be varied in the degree of their intensity. Thymus pressure on the trachea usually presents early the increased inability to breathe and is usually accompanied by a certain amount of hoarseness or aphonia.

Fourth.—Cases of bronchial or tracheal diphtheria. These cases, as has been shown by Lynah of New York may begin by having the formation of membrane within the bronchi or trachea and have none on the tonsils or larynx. This class of cases usually show dyspnœa as a predominating symptom, and may or may not have any hoarseness.

Fifth.—Persistent cough of long standing accompanied by occasional foul expectoration and without definite physical signs in the chest, should make one suspicious of a foreign body in the bronchi. Of course an X-ray examination if positive would be of decided value, but even though negative—an endoscopic examination would not be contraindicated.

Sixth.—In those cases of bronchiectasis or abscess of the lung, that have recently been demonstrated by observers at Mount Siani Hospital to be of more frequent occurrence than supposed.

There have been some few cases of abscess of the lung following the adenoid and tonsil operation, while others have been reported that followed general surgical operation remote from the tracheobronchial system. These cases were all diagnosed by X-ray. It is very possible that an endoscopic examination of these cases would have been of value.

Seventh.—Of course the inspiration of any foreign body would be an indication for endoscopy. While this phase of endoscopy admits of brilliant work and allows the removal of the offending articles from the air passages with the least surgical trauma, still the examination of the air passages—in a routine manner for the conditions noted above, other than that for foreign bodies, is of decided value and must of necessity find a place in our methods of diagnosis.

Illustrative of this, a case may be cited.

A two-year microcephalic idiot was brought to the Manhattan Eye, Ear and Throat Hospital on the service of Dr. Harmon Smith, suffering from slight dyspnœa and hoarseness. The mother stated that "the child did not cry as loud as it used to."

Direct examination of the upper esophagus and larynx was negative. The examination of the lower portion of the trachea showed a compression stenosis. The diagnosis of an enlarged thymus was made and confirmed by X-ray.

Of course it must be understood, that the above cited indications are of value only after the usual methods of examination and diagnosis have been carried out, and pneumonia, fluid in the pleural cavity, acute dilatation of the heart and other similar conditions that would give rise to cough and dyspnœa, have been differentiated.

METHODS OF EXAMINATION OF THE AIR PASSAGES.

Larynx.—For simple examination and diagnosis, the child's spatula of Jackson is an instrument that possess all the qualifications that one for this procedure should have—that is, ease with which the instrument can be passed, proper illumination, sufficient area of exposure of the larynx and the ease and sureness that the epiglottis can be held by the beak of the instrument.

For work within the larynx the writer feels that the Killian Suspension Laryngoscope gives the better exposure of the parts and permits of easier operating. With the use of the author's improved Arrowsmith's light attachment one of the greater difficulties of the appliance has been overcome—that is, a proper light is available, that may be adjusted to illuminate the larynx sufficiently. The application of the Suspension Laryngoscope is the same as in adults, the writer refers to his paper on "Some Methods Useful in Direct Laryngoscopy" read before this Section of this Society in 1915.

PREPARATION AND POSITION OF THE PATIENT.

The child should have no food in the stomach and except in older children that are very unruly no anæsthetic should be given. As a routine practice *no anæsthetic is ever used.* To those children in whom one would surmise that the examination will be done under great difficulties, a small dose of chloral per rectum one hour before may be given. This is rarely necessary and is simply mentioned where this contingency may arise. Properly swathed in a mummy bandage and firmly and properly held, there are few children that cannot be thus examined.

The position of the patient's shoulders should be off the table, with the head extended, but with the occiput raised an inch or so from the level of the table. This can be done as in the Boyce position with the assistant sitting and holding the head. Another very good way is, by the assistant standing at the side of the table, facing the head of the patient and holding the head in both hands in front and slightly to the side. This permits the operator to have full room in front of the table.

This method was suggested to the writer by Dr. Lynah of New York, and it has been of great service particularly where a trained assistant is not available.

Irregardless of what position or whether the so-called "straight position" of Johnson is used, if one will observe closely, the mechanics are the same. To properly expose the larynx, one must imagine that he is attempting to suspend the patient's head with the beak of his instrument within the larynx and in so doing he expends his lines of force at the hyoid bone.

A study of the diagrams in Jackson's work will plainly show this fact. Using the upper teeth as a fulcrum in order to execute this procedure is poor technic.

Introduction of the Bronchoscope.—It is better to examine the trachea with the bronchoscope, for if necessary one can then go further and complete the examination by entering the bronchi.

In the introduction of the bronchoscope, the laryngeal spatula should be held as for examination of the larynx, in the left hand. The bronchoscope with its own illumination is passed through the laryngoscope and beyond the vocal cords, using the beak of the instrument to insinuate itself between them.

The bronchoscope is not held by the handle, but as directed by Jackson in his instructions of "How to introduce the Bronchoscope" and for the detail of this the reader is referred to Jackson's work on Peroral Endoscopy.

The important thing to recognize after entering the trachea is the tracheal rings, and the fact that we feel the breath of the patient coming through the tube. Next of importance and which must be recognized before entering the bronchi is the carina trachea. This is where the trachea bifurcates into the bronchi. This anatomical landmark must always be seen, to properly orient oneself before entering the bronchi.

It is hardly necessary to dilate on the different anatomical characteristics of the two bronchi, but for clearness, it may be stated that the right bronchus is larger than the left and may be considered a continuation of the trachea in size and almost so in direction. The left bronchus is given off at more of a right angle than the left. Also the right bronchus has a large sub-division, the eparterial lobe branch.

A very important detail during the examination of the bronchi and especially when out in the smaller ones, is to watch the regularity of the breathing. A sudden increase in the number of respiratory movements or deep inspirations should warn one that the end of the bronchoscope is acting as a dilator to these smaller bronchi. This is dangerous ground and should be abandoned immediately. This physiological fact has been shown experimentally in animals and is a vagus stimulation.

The danger of perforation of the bronchus and entering the pleural cavity is one that has not been sufficiently dealt with and while it may not be invariably fatal, still death may occur and always does in animals.

The writer witnessed one such case in a child about a year old, and while it is impossible at the present time to state positively that perforation was the actual cause of death —because an autopsy was not permitted, experimentation on animals would point that this was the cause of death.

The cause of death in animals being collapse of both lungs. Most animals, under light anæsthesia died within three minutes; a considerable number dying sooner. No anatomical connection could be found between the pleural sacs, but there always was a rupture of the pleura in the septum, behind the sternum or just in front of the esophagus.

With these animals one could see the positive pressure exerted in the cavity opened by the bronchoscope, and instantly a positive pressure in the other cavity.

This is a very interesting study and, of course, requires considerable further work to translate these experiments conducted on the dog and cat to the human.

Suffice to say, that a working hypothesis may be suggested, that the sudden collapse of the lung, collapsed down to less than its normal resiliency, produces such marked afferent inhibitory respiratory impulses in the medulla, that an arrest or paralysis of respiration takes place and the animal dies.

The Size of Bronchoscope to be Used.—In infants under six months the four mm. size is to be used. The five mm. size may be used provided the child is large in proportion to its age. Of course, in older children one uses the seven mm. tube.

Low or inferior bronchoscopy is rarely indicated. The smaller the tube through which the examination and instrumentation is conducted, the less likely of post-operative edema of the larynx.

For these smaller tubes, very delicate forceps have been constructed so that there is sufficient room for proper instrumentation.

Use of X-ray in Endoscopy.—For all bodies that are sufficiently dense to the rays, of course we have a positive diagnosis.

However, there are various types of foreign bodies that have been removed from the bronchi and esophagus, and in which the X-ray was negative. Pieces of wood, bone, seeds and nut kernels rarely cast a shadow sufficiently dense to be recognized.

Methods of Localization Within the Bronchi.—This method consists of overlaying positive films of the bronchi on the radiograph taken of the case in whom the foreign body is suspected to be in. It is fairly accurate and assists materially in the location of the offending intruder.

In conclusion one may examine the patient physically, radiographically, and there may or may not have been a positive evidence of swallowing a foreign body, but in order to conclusively state that the foreign body or pathological condition is present or not, endoscopy must be practiced, for it has become an exact method in diagnosis and treatment, and particularly so in children.

Since the use of the suspension laryngoscope, and especially the improvement by Lynch, of New Orleans—the extirpation of papilloma from the larynges of children has become in the majority of cases a more successful procedure.

It would almost seem that with this method of exposure we can so remove the base of the papilloma surgically or by fulguration destroy the base, that this should be the procedure of choice in this pathological condition. Of course, the only proper and safe method in the dilatation of the esophageal stricture whether in the adult or the child is by passing the dilator of whatever type per tubam—that is by seeing what we are doing.

How many unrecorded fatalties are there of attempts made either digitally or with coin catchers, umbrella probangs, and other devices to remove foreign bodies from the esophagus? More fortunately those cases in which the foreign body has been lodged within the air passages have been relieved by trachetomy, but, of course, with the added danger of this operation; all these conditions may be relieved and a successful issue promised in the great majority of cases by endoscopy. However, endoscopy must be practiced by one who is doing this work more or less continuously, or what amounts to nearly the same thing—keeping in practice by work on animals.

To recapitulate—endoscopy of the esophagus and upper air passages in children and also in adults, should be made use of more than it. is, as a means of precise diagnosis. The common notion regarding endoscopy is to intimately associate it with the removal of foreign bodies. While this is certainly a brilliant and spectacular procedure, still the use of endoscopy as a means of diagnosis and treatment, other than surgical, makes it a useful and practical means and is surely an advance in medical progress.

Discussion.

Dr. Sidney Yankauer, New York City: There is one point which Dr. Imperatori brought out which I think is of particular importance, and that is the question of anesthesia. Where manipulation is short and direct, as for instance in the removal of a coin from a child, the child can be held still enough to remove the coin without an anesthetic. With very young infants it is always possible to hold them quiet enough to make a bronchoscopic examination without anesthesia. But in older children, in children over two or three years, I have found it practically impossible to perform a bronchoscopy in what I should regard as a safe manner without a general anesthetic. In fact, I have one case on record in which death followed a bronchoscopy for the removal of a foreign body, where I attribute the death directly to the fact that no anesthetic was used. This was a child two years old who was eating a mixture of vegetables—peas, beans, and so forth, and who had inhaled some of these. I found pieces of these vegetable kernals in both bronchi, and removed them as thoroughly as was possible. The child was wrapped in a sheet—what we call "mummifying." It was a two-year-old child; it was held by about four people, and during the entire manipulation it was struggling and wriggling to such an extent that I was afraid every minute I was going to perforate the bronchi. Following the operation the child passed by rectum a considerable quantity of the same vegetables, and also vomited some more—so it was pretty well filled up with them. I left town the next day. The child was in the hospital and Dr. Emil Mayer was looking after it. He stated that he was called suddenly about twenty-four hours after the bronchoscopy to see the child. It was in extreme dispnœa. Examination of the larynx showed the larynx was free, and that the dispnœa came from the lower part of the respiratory tract. And the child died with the symptoms of asphaxia. Now, I believe that this death was caused by edema of the trachea, a condition which is very well known in cases of foreign bodies in young children. I prefer in most of the children that I bronchoscope to use a general anesthetic. In infants—that is, children under a year old or in children that are not particularly strong and powerful perhaps two years old, it can be done. But I think it is much safer when it is done under general anesthesia.

The use of the bronchoscope for other conditions than the removal of a foreign body is a matter of growing importance; and the paper of Dr. Imperatori is particularly to be commended for bringing out that phase of the question. I have seen various kinds of benign growths, both intrabronchial and extrabronchial, which could not be recognized by any other method except by means of the bronchoscope. And I believe that it is our duty as laryngologists to call the attention of the general practitioners in our large institutions not only to the harmlessness of this procedure but to its great value in the diagnosis.

Finally, I wish to record here—I have already mentioned it, the only death that I have ever had during a bronchoscopy. Dr. Imperatori mentioned the matter. This was an adult, a woman who for over a year had been treated for beginning tuberculosis. A radiographic examination was made of her chest for the purpose of record before she was sent away. The radiograph disclosed the presence of a pin, an ordinary brass pin, very low down in the lung. The history was then obtained of the inhalation of this pin about a year and a half previously. The bronchoscope was introduced under general anesthesia; and the pin not being found in the bronchi, a probe was passed down very carefully into the smaller bronchi to locate it. In one bronchus I thought I felt the pin. And the moment I touched it the patient went into convulsions. I withdrew the probe, the convulsions ceased, breathing became perfectly regular, pulse was good. The chest was examined by a competent internist, who declared there was no air in the pleural cavity. I proceeded with the bronchoscopy and introduced a forceps to seize the pin; as soon as the forceps came in contact with the foreign body, the patient again went into convulsions. I withdrew the forceps as well as the bronchoscope, and put the patient back on the table. The convulsions continued and the patient died. This was the only death that I have ever had during a bronchoscopy. It is a fact which is known to surgeons that any irritation of the pleura can produce convulsions. And this pin was located so deeply that it was quite possible that the head of the pin was in contact with the pleura, or very close to it, and that any movement of the pin caused the irritation which precipitated the convulsions.

Dr. John E. MacKenty, New York City: Dr. Yankauer has covered the ground of the discussion very well. So far as I am concerned I am in favor of using anesthesia in all cases excepting where we have a very cursory examination to make. In speculum examination in children, which is done quickly, an anesthetic is not needed. But if you are going into the esophagus of a child or into the trachea of a child I think that it is dangerous to go in without anesthesia, because you have not the consent of the child, and there may be a good deal of struggling—and you all know how hard it is to hold a child even if it is wrapped up in the best way possible.

In adults it is a different matter. You can go down into the trachea of an adult very easily, because the adult will keep quiet and help you. But in children I think it is a little dangerous without general anesthesia.

In the diagnosis of foreign bodies in the lung, the X-ray doesn't always reveal the foreign body. If it happens to be one that the X-ray won't show, I think that the physical examination of the lung by a competent chest man is sometimes of great help to us in determining the presence or absence of a foreign body.

In one case which I had, of a peanut shell lodged in the right lung, we managed to make the diagnosis pretty certain by the fact that there was evidently an occlusion of a large bronchus, producing physical signs.

Dr. Imperatori: I have nothing to add, except to say that I still believe that children should be endoscoped without an anesthetic.

THE RESPONSIBILITY OF THE PHYSICIAN IN THE CONTROL OF CANCER.*

By ALFRED J. BROWN, M.D., F.A.C.S.,
NEW YORK CITY.

It is an unusual privilege for one person to participate in the early stages of two campaigns against diseases which are taking great toll in human lives. On this account I deem myself particularly fortunate in having the honor to appear before you tonight and speak to you on the subject of cancer, for it was not many years ago, in another city of the State that I had the good fortune to assist actively in the early part of the organization of the state-wide campaign against tuberculosis. At that time tuberculosis was beginning to find its place as one of the diseases which could be successfully combatted. Was being recognized as a curable disease, and the picture of the so-called consumptive in the last stages, the picture painted in glowing colors on the perceptions of the laity, a hopeless and incurable invalid, was being replaced by that of a rather robust looking semi-invalid, living a rational open air life, and at the end of a variable period being pronounced cured and returning to his work as a healthy and producing member of the community. Although the two problems, cancer and tuberculosis, differ medically in their symptoms and in the diagnosis, still the same things may be said of both. In the last stages a pathetic hopeless picture. In the early stages hopeful and almost certain of ultimate cure. We are now in the problem of cancer about where we were in the problem of tuberculosis ten years ago, and cancer is beginning to gain the attention that it deserves both from the medical profession and from the general public.

At the outset the campaign against tuberculosis looked just as formidable and just as difficult as does that against cancer, and still one can look back over the few years and see the tremendous good that has been accomplished by that campaign. The same will undoubtedly be true in cancer, provided only that the medical profession will take the same active part in the work and become active educators as they did in the tuberculosis campaign. Already the work is actively begun, and for the past three years the American Society for the Control of Cancer, which I have the honor to represent before you this evening, has been vigorously pushing the campaign against the disease.

A few words as to the aims of the society may not be amiss. It is national in its scope, and organized somewhat along the lines of the National Society for the Study and Prevention of Tuberculosis. Its directors are located throughout the United States, the greater number being from New York City. The executive secretary, Mr. Curtis W. Lakeman, a layman, does the work of the society under the direction of the Executive Committee. The aims of the society in the main are two. First, to obtain better statistics regarding cancer, and second, to give to the laity such information as is known concerning the disease. The first is being obtained through co-operation with the Director of the Census and various hospitals throughout the country, and the second by means of literature, lectures and co-operation with the medical profession.

Some time ago, in one of the current magazines, I read a story which made quite an impression upon me at the time, and that impression received then has remained and appears to me particularly appropriate to the talk that I am going to give this evening. The story dealt with the life history of a young advertising agent who started in a rather peculiar way. He wanted a position under a certain man, and it seemed to him that the simplest thing to do was to go and ask for it. This he did and eventually received the appointment. He went along in just this way throughout his entire career, doing the obvious thing, until finally he became known as Obvious Adams, and this was the title of the story. Doubtless many of you have read it. The author of the tale showed conclusively that there was nothing secret or hidden about the business in which the man was engaged, but that the things people in general wanted to know were the simple obvious facts with the abstruse things left out. He furthermore showed that in this individual case it was successful, for the man picked the right facts, and cited many instances to prove his points. It seemed to me in thinking the matter over that the moral of the story, if it could be called such, is a good one, namely, the simple obvious facts are the telling ones, and in my talk tonight I shall try to deal with the problem before us by dwelling upon the obvious facts—as I see them—and I trust that I may in part at least be successful in picking the right ones.

To begin with—what do we know about cancer? Our knowledge may be divided into both positive and negative facts. We know many things that it is and of more importance from the standpoint of instruction of the laity, for which we as physicians are responsible, we know many things that it is not, and some of these things contradict deeply seated ideas and conceptions of the disease possessed by the general public.

We know little concerning its actual etiology. The workers in the laboratories have given us no clue to this but in the course of their investigations extending over a period of many years, many positive facts have been determined. Cancer consists of an abnormal overgrowth of cells normally present in the body in certain positions; namely, the epithelial cells for carcinoma and the connective tissue cells for sarcoma. Furthermore, we know that in the early stages of the disease this growth is always local. The growth consists of a local focus of overgrowth, hemmed in as it were, even though not encapsulated and does not include neighboring parts or form metastases either through the lymphatic or hæmal circulations and consequently being local is subject to absolute and permanent cure by surgical means which consist in total removal. This fact alone is of great importance from the lay point of view. For many persons believe thoroughly that cancer is an incurable disease and once let an individual develop a cancer, that individual is doomed beyond any question of doubt.

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* Read before the Medical Society of the County of Montgomery, at Amsterdam, April 21, 1916.

For this state of mind we physicians are in part responsible. When we have a case of cancer, we are very apt, though instituting proper measures for its removal, to hide from the patient and possibly his friends, the nature of the disease. Our failures to cure or cases which have come to us beyond the hope of cure are known widely and consequently the laity hears of the fatal cases but does not know of the successful ones. In general it may be said that we "spare the rod and spoil the child."

Should a cancer be allowed to progress without removal during the early stage it invades neighboring tissues and spreads to other parts of the body by metastasis. It has then become a general disease and is beyond the hope of cure either by medical or surgical means and the result is always fatal. It may be of interest here to quote a few statistics as to the cure of cancer.

Surgery is successful—

in	percentage of cures	
	Early op.	Delayed op.
Cancer of the breast..	80 per cent	25 per cent
Cancer of the lip......	95 " "	60 " "
Cancer of the tongue..	80 " "	15 " "

Approximate estimates furnished by the American Society for the Control of Cancer.

Other facts which we know—more or less negative facts to be sure are—that cancer is not a germ disease, it is not hereditary and it is not contagious. The last two facts are not believed by the general public—the majority of whom are fully convinced that the disease is hereditary and many of them consider it as contagious. As to the first of these—heredity—there seems at first glance to be a justification for this belief as certainly it is not infrequent to see two or more cases in a family. When, however, we consider that in this country cancer seems to be on the increase at a rate of about 2½ per cent each year, or 25 per cent in a decade and the death rate for the United States calculated from the total registration area which comprises 65 per cent of the population is 80,000 deaths per year from cancer it is not at all surprising that from the general law of averages two or more deaths would occur in one family. Looked at from another angle makes the fact of coincidence rather than heredity much more striking. The statistics quoted above, applied to the total death rate show that at ages over forty years—one woman in every eight, and one man in every fourteen dies of cancer. When we consider that going back three generations every individual has seven direct male and seven direct female ancestors, not counting any of the collateral relatives, it would seem rather surprising if any of us were unable to point out cases of cancer in the family.

As to the increasing death rate it has been stated that this is more apparent than real, and is due more to careful observation and careful diagnosis by the medical profession rather than to a real increase. This would, however, seem to be doubtful for certainly in many cases cancer is an external disease and our predecessors in medicine were very skilled observers, and it would seem doubtful if a sufficient number of cases would have escaped notice to have made the increase as noted. If, however, the increase is due to more careful observation and diagnosis it is a healthy sign for it would tend to show that the medical profession is more alive to the occurrence of the disease and it is to be hoped that soon the diagnosis will be made early enough to be recorded upon the hospital record with the word cured after it rather than upon the death certificate.

Knowing then that the disease consists of an abnormal growth of normal cells which pass from their normal sites, run wild so to speak, and invade surrounding parts, it would seem that one of the most important things for us to know is the parts of the body most frequently affected by the disease. It may be said that there is no part of the body which cancer does not affect, but on the other hand, some parts are affected much more frequently than others and it is absolutely necessary that the physician bear this constantly in mind and suspect any disturbance of these parts. The portions of the body affected differ in the two sexes. In males the most frequent site is the stomach, with 20 per cent of all deaths due to this disease being of this form. Next is cancer of the intestines and rectum, with a trifle less than 20 per cent, then cancer of the liver and gall bladder 8 per cent, œsophagus about the same, cancer of the tongue 6 per cent. Skin 3.5 per cent, and then the rarer forms of cancer of prostate, bladder, lung, etc. These statistics refer of course to the epithelial form of growth, carcinoma, which occurs in adult life.

In women by far the most frequent site for cancer is the uterus, which accounts for 30 per cent of all deaths from cancer at all ages, next is cancer of the breast with 16 per cent. Then cancer of the stomach, intestines and rectum, and liver and gall bladder. Cancer of the skin is about half as frequent in women as in men and that of the œsophagus as one to three.

We come now to one of the most basic and important facts that is known about cancer and in a way one of the most discouraging facts that we have to face. That is that the early symptoms of cancer are always minor symptoms and almost—one may say negligible. A small lump in the breast for instance, a little bleeding between the menstrual periods or a slight chronic indigestion. There is no pain of any kind and the individual does not feel sick, but simply bothered by these indefinite and somewhat uncomfortable symptoms, or by the mere presence of this painless lump which was noticed purely by accident. To the lay mind and to many minds in the medical profession such a train of symptoms does not spell cancer. Cancer in their minds is a hideous disease, painful ulcerations, a patient weak and hardly able to lift his head, almost like leprosy, foul discharges and all the train of symptoms which go to make up the picture of a patient dying of cancer in its last stages. Here is where our responsibility as medical men must rest. We must so educate ourselves and the laity that the latter picture will be forgotten and a thing of the past. We must take a new viewpoint and make ourselves realize that the first picture does suggest and more than that impells us to think of and suspect cancer, for unless we do this and content ourselves to believe still that the second picture is the true one of cancer, just so long will cancer continue to draw its great yearly mortality and continue to increase as it is now doing.

The question then comes as to how this is to be done. First our duty in relation to the patient himself, both as a class, the general public, and as an individual. We must educate the public as to the warning signs of the disease as affecting various parts of the body. This can be done by means of public lectures, by literature, and by articles in the public press. In addition, talks to the nursing force of the hospitals and the social service workers, pointing out the symptoms to be looked for and the importance of impressing upon individuals presenting these symptoms the necessity of thorough medical examination. The American Society for the Control of Cancer, which I have the honor to represent before you, stands ready to aid in any way in its power. By the furnishing of literature, lectures, if needed, and further advice as to the details of the propaganda.

Next comes the relation of the physician to the individual member of the community suffering from symptoms which to him or her are of minor importance. We hear much of the fact that the patient does not come to the surgeon until too late. This is lamentably true, but in many cases it is not the fault of the patient, but of the physician. Those of us who work in the large hospitals where we see a great mass of clinical material find that the number of patients with advanced cancer who have not previously consulted a physician is extremely small. The symptoms are minor ones, ill defined, not at all alarming, and as a consequence the patient receives some form of medication and is reassured and time goes on until the symptoms are alarming and the time for cure is past. Furthermore, in many cases the patient has never had a complete physical examination, and in this I include the various adjuncts of the clinical laboratory and the X-ray. The number of patients that do not consult their family physician for these minor symptoms is few indeed, and it may almost be said that the object of the propaganda for enlightening the public is to protect it from the careless members of the profession, for it is due more to carelessness than ignorance that many cases escape recognition and many lives are thus sacrificed just in their prime, for it is the healthy adult that cancer is most prone to attack. For many years our medical schools have been turning out physicians perfectly competent to make a thorough physical examination, but the question comes up: How many do it after four or five years in practice? We must teach the laity that when they consult a physician they must receive a thorough physical examination, or they are not receiving proper attention. If this can be done, and if we can impress upon the members of the profession the great importance of thorough examination of these patients with the aid of X-ray, clinical laboratory, and, if need be, special consultants, much will be done toward the recognition of early cancer. Its removal will be possible in the stage when it is a purely local disease and is curable. In order that this be done in the most efficient manner, it is necessary that we work diametrically opposed to the dictum of our legal confreres, which states that every one is innocent until proven guilty, and consider every growth or suspicious symptom guilty until proven innocent, and the ultimate test should be the appearance of a section under the microscope.

During the past twenty years the campaign against tuberculosis has engaged the attention of both the public and the medical profession. Much has been gained, as the results show, and how has it been gained? The public has been educated until it knows the early symptoms of the disease; it has been educated to protect other members of the community from contagion, which is not necessary in cancer, but above all it has been educated until it knows that a diagnosis of tuberculosis cannot be made without an examination of the lungs and of the sputum, and this the patient demands. As a result, where twenty years ago there was one physician able to recognize the early signs of tuberculosis in the lungs, there are now hundreds, and the present day physician could not tell a patient who came to him to know whether he had tuberculosis or not; that he did not have it simply by looking at his tongue and feeling his pulse, because he would realize that the patient would know better and would consult another physician.

This state of affairs must come in cancer. The physician must realize the importance of the early vague symptoms, must suspect them and bend all his energies toward proving to his own satisfaction that the patient has or has not cancer, and if this is done our mortality statistics will no longer show an increase, but on the contrary, will show a marked decrease.

The results of education of the public by the Department of Health of Portsmouth, England, are very enlightening in respect to mortality statistics. Dr. Frazer, the Medical Officer of Health of that City instituted the educational methods in 1913, and for several years before that time cancer had been on the increase. The campaign of education comprised monthly articles in the local press on cancer, lectures to nurses, social workers, and gratuitous microscopical examination of suspected tissue for those unable to pay for it. Dr. Frazer states that the reason for delay in seeking professional advice was not fear of operation, but because of the painlessness of the disease, the patient being ignorant of its severity. In 1913 the number of deaths from cancer was 230, while in 1914, after one year of educational measures the number of deaths was 197, in spite of the facts that the population was increasing and that for some years previous to 1913 the cancer death rate had been constantly on the increase, and this occurred during a period in which the statistics throughout the greater part of the world showed an increase in the number of deaths from cancer.

This shows not only what can be done, but what has been done, and there is no apparent reason why by following out an intelligent course of education both for the medical profession and the laity equal or surpassing results cannot be achieved.

In conclusion: We know no cause of cancer, and we know of no cure, except excision while it is still a local growth. We do know, however, that the disease is curable in its early stage, and the symptoms of this early stage are vague and inconstant. We must wipe out our former picture of this disease and paint a new one of it. Less terrible, less distinct and clear-cut, but still recognizable provided we study it well, and our success in the combat against it will be measured in terms of our vigilance, for the only hope of curing cancer lies in early recognition and prompt surgical treatment.

BIRD SHOT FOUND IN THE APPENDIX.

By JAMES N. VANDER VEER, M.D.,
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CASES of foreign body found in the appendix are not so common and yet are not so rare, but cases of bullets in the nature of small bird shot are rare in the literature, and the following one seemed to be of a somewhat puzzling character in its diagnosis, and should be well worth setting forth; which is therefore the occasion for putting this case on record.

The accompanying X-ray pictures were taken by Dr. John M. Berry, radiographer at the Albany Hospital, and at a time when the radiographic machine was being overhauled. Therefore, there is some excuse for their not being of a more clear cut character.[1]

On December 7, 1915, Dr. Tiffany Lawyer of this city referred to me Mr. J. K., a car inspector residing in a nearby village, twenty-four years of age and married, with two children. Mr. K. complained of occasional pain beginning in his back and radiating to the right inguinal region. He had been in a hospital two years ago under some similar conditions, but had had no X-ray work done upon him, and after a week's stay had been discharged as cured—diagnosis, "kidney trouble."

Up to November 23, he had felt well, but in the past few weeks when attempting to do any work he had experienced a "catch" in his "back muscle" limited to the right side, and then suddenly he had been taken one day, in an attempt to make water, with pain; and found that he could not start his urine for several seconds. However, following this first attack it was almost impossible to stop his urine after it started, though the stream was never shut off while he was making it. He has never passed any blood, and latterly the desire to void has increased in the number of times, while he has been working. At times he passes a very small amount of urine and this is followed by a considerable quantity shortly after. Occasionally it is necessary for him to arise at night to void.

The nature of the drinking water of which he has partaken during his life has been soft in type, and he has never been a drinker of alcoholic liquors, nor has he ever suffered from venereal disease. Neither has he passed any calculi from his urethra.

In addition he states that his right side has never felt full, nor has he ever experienced any trouble with his stomach save two weeks ago when he had two sudden attacks of nausea without vomiting, but this he attributed to some food which he had eaten. His bowels have always been constipated, and further than giving a history of having had the usual diseases of childhood in the nature of measles, mumps, chickenpox, he has only had a neuritic condition, so diagnosed, at twenty years of age—four years ago—which partially was localized in his left side and leg in the nature of a sciatica. From childhood until he commenced working on the cars, bending over and lifting as the nature of his work demanded, he had always considered himself healthy save for these two attacks at twenty with rheumatism, and at twenty-two with his supposed infected kidney, for the latter condition he was given some "white pills" to be dissolved in water which promptly relieved the condition when accompanied with the ice bag over the anterior kidney region.

On physical examination he presented a temperature of 98.6 with a pulse of 80, varying from this pulse rate on succeeding minutes through 64, 80, 76, which led us to suspect that he had some heart lesion. His S.B.P. was 130 and D.B.P. 70. Throat, head, eyes, ears and lungs, ataxia, reflexes were normal. He has a broken nose with the accompanying deviation of the septum following an accident some six years ago.

His heart when examined carefully showed an arryhthmia, with irregular pulse now and then, and intermittent in the beat of each valve, but normal in size, and these signs were attributed to excessive use of tobacco.

Blood Count Was Normal.

His abdomen when examined carefully showed a point of tenderness over the bladder region midway between the umbilicus and pubis, but this was not altered with change of position.

The general examination of his urine taken on December 7, was practically negative, save that a few red blood cells were found in the centrifuged specimen, and it was therefore deemed necessary to take a series of X-ray pictures before proceeding further. Picture No. 1 shows the result of the first picture taken, this shadow seeming to lie behind or within the bladder at its uppermost part.[1]

Cystoscopy Was Negative.

Ureteral catheterization was then performed and there was but a slight difference in the examination of urine of the two specimens passed. While the ureteral catheters were in situ a stereoscopic set of pictures was made which showed that the shadow at least did not lie within the bladder wall, and was fairly distinct from the ureter, and a diagnosis was then entertained of a concretion, or a series of concretions in the appendix, the nature of which, however, was not suspected at that time.

The phenolsulphone test gave a 50 per cent output in the first hour, and the second hour it was not thought necessary to follow with this high percentage. Cultures of urine from each kidney, made at the Bender Laboratory, were absolutely sterile at the end of 48 hours incubation.

In view of these negative findings in our department of urological survey, the patient was then transferred to the surgical service and on December 10, 1915, was operated on by the attending surgeon on duty, Dr. Elting, and an appendix some 4½ inches long was found lying behind the bladder, perfectly free in the abdominal cavity, but with a short mesentery and without the least evidence of inflammatory change.

Upon palpating the appendix as it was being brought up into the wound the surgeon remarked that it felt very much as if there were a number of shot of small caliber within the lumen of the organ, and after its removal the appendix was opened and seventy-four shot of the size indicated were counted as having occupied the lumen.

The patient made an uneventful recovery and with the two weeks rest in bed following the operation his heart became normal in its action; his constipation was relieved; the pain in his back had left, and his urinary trouble had apparently completely righted itself.

The fifth and sixth day following his operation I plied him with questions as to the manner in which these shot might have entered his intestinal tract, and the day following my questioning the patient sent for me and said that as a youngster of nine or ten years old he had formed the habit of holding shot in his mouth and then by means of his tongue and a current of air he had been wont to blow them out of his mouth at objects, and he suspected that perhaps he might have used a bean blower with shot as the missile blown out, but he could not remember having had any shot in his mouth for the past ten or twelve years, hence these must have been carried in his appendix for all that time at least without having caused an acute inflammatory condition, and with only one manifestation two years previous when he had been in a hospital for his week's stay.

OBSERVATIONS ON FRACTURES.*

By CLYDE ORRIN BARNEY, M.D.,
SYRACUSE, N. Y.

TAKEN from one viewpoint every factor is potentially a deformity and if it becomes a permanent deformity will lead to impairment of function. So that the object of treatment is the restoration of complete function and the overcoming of the deformity with least risk and inconvenience to the patient and least anxiety to the surgeon. In order to accomplish this result it is necessary to learn and remember the disabilities and deformities most likely to occur after fracture in each particular region of the body, and also the difficulties encountered peculiar to each. There is one principle that holds true in all, and that is, that the smooth working of a limb depends on preserving the true axis of movement of the joints, so that the stresses of muscular action may act across the joints in normal lines. We are dealing with mechanics and Wolff's law says that, "Strain is proportional to stress," therefore, abnormal stresses will produce abnormal strains and living bones will become proportionately deformed. Therefore in dealing with shafts of long bones the first consideration is to secure and maintain a true anatomical alignment of the bones, so that the axis of movement of the joints at the two ends of the bone may retain their correct relative positions. The best results are obtained when the fragments are brought into correct re-position. But experience has proved that nature is kind and a metriculous exactness in replacing every fragment is not always necessary to a perfectly good functional result.

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[1] Which is the reason of their not being produced. (Author.)

* Read before the Syracuse Academy of Medicine, February 16, 1915.

Surgeons with large and varied experience in the manipulative treatment of deformity will have greater confidence and skill, and will obtain better results than the novice, and these surgeons will reserve direct operative procedures for those cases which show that after skillful manipulation they were unable to retain the parts in a correct position until union of the fragments had taken place.

The primary object of a splint is to maintain *alignment*. The second object—to keep the parts immovable. The old traditional wooden board is fast disappearing. No human limb will fit a flat board. If the limb is bandaged firmly enough to make it immovable, then the shaft of the bone is almost certain to be out of alignment. Our limbs are cylindrical and can only touch a board along a line, and if firmly bandaged this line will undergo pressure atrophy or necrosis.

Many fractures extend into joints, and inasmuch as absolute rest from movement is to be insisted on as a condition necessary for reducing the formation of obstructive callus to a minimum, the question naturally arises, when can movement of the joint again be resumed? A human joint is not like a rusty barn-door hinge. A joint that is tender to palpation is not ready for movement. This tenderness means that excessive vascularity is still present in the bone, surrounding periostium, and tissues, and therefore any attempt at movement will certainly injure the parts, producing fresh exudate and exciting new callus formation. Re-apply your splint and wait. In the end no time will be lost.

In our study of the cases I am about to report experience has shown us that a great many cases of "non-union" have really been "delayed union," and that a little more time and patience proved they were delayed unions. Text-books very kindly lay down the exact number of days it requires to unite given bones. This unfortunately is misleading, for every case has a rule of its own, partly governed by constitutional conditions, and partly by that patient's ability in producing ostenogenetic powers.

I have here a report of a certain series of broken bones in the first surgical service of the Hospital of the Good Shepherd. Part of these are ward cases and part private cases of Doctor Price and myself.

Bones of the head and face	
Temporal	1
Occipital	1
Frontal	1
Malar	1
4 cases	4 (men) bones

Spine	
Cervical (5-6)	2
" 4th	1
Dorsal, 2d	1
Lumbar (4-5)	2
4 cases	6 bones (men)

Clavicle	
Left (woman)	1
Double (man)	2
2 cases	3 bones

Humerus	
Upper end	2
Middle	1
Lower end	2
5 cases	5 bones (men)

Ileum	
2 men	2 cases

Crushed Pelvis	
1 man	All bones crushed

Patella	
2 men	2 bones

Os Calcis	
1 man	1 bone

Astragalus	
1 man	1 bone

Phalanges of Toes	
2 men	4 bones

Hip (Femur)	
4 men	4 bones
4 women	4 "
8 cases	8 bones

Femur—Below Neck	
1 man	1 bone
1 woman	1 "
2 cases	2 bones

Femur and Shaft	
6 men	6 bones
2 children	2 "
8 cases	8 bones
Total	116 cases

Colles'	
Men	6
Women	6
12 cases	12

Radius	
Upper 1-3	2
2 cases	2 (men)

Ulna	
Boy	1
Women	3
4 cases	4 bones

Ulna—Upper End	
Women	2
Boy	1
	3
Ulna	7

Ribs	
Men	4
Woman	1
	5 cases

Carpal	
2 men	2 bones

Phalanges of Hand	
1 man	1 bone

Tibia and Fibula Both	
8 men	16 bones

Tibia Alone	
6 men	6 bones
1 woman	1 bone
1 child	1 "
8 cases	8 bones

Fibula Alone	
7 men	7 bones

Summary	
In Order of Frequency	
Femur	18
Tibia	16
Fibula	15
Radius	12
Ulna	11
Vertebræ	6 etc.
Men	83 bones
Women	19 "

The three cases of skull fracture and the malar bone fracture were treated by open operation with elevation of depressions, and all recovered. The four spinal cases were treated by open operation. Three died. The fourth case, a fracture of the second dorsal, the greater portion of bone, exclusive of the body, was removed, and although the cord was torn by the fragments the patient is alive and able to walk. He was one of the men who fell with the scaffold at the bread works. We had one man injured at the same time who sustained a crushed pelvis. He died of internal hemorrhage shortly. Autopsy disclosed a crushing of the pelvic bones.

Clavicle.

Case 1.—A woman, was shot, with a revolver, the bullet fracturing her left clavicle. She enjoyed a good result with little or no apparatus to hold the fragments in place as she was confined to her bed on account of other injuries.

Case 2.—A man with a double fracture was an interesting case. He was a foreigner and was thrown from a wagon in a runaway, fracturing each clavicle at the inner third. He had a very troublesome chronic bronchitis of almost an asthmatic type and was unable to lay flat in bed. Like most individuals he had movements of respiration at the rate of 26,000 a day and withstood the shock of sneezing, coughing and blowing his nose. I have yet to see the apparatus that will hold the fragments of a broken clavicle absolutely quiet under these muscular strains and stresses. But we held him by double figure of eight bandages and adhesive harnesses as best we could, re-applying and adjusting same sometimes as often as three times a day. Union was very slow in both bones. Callus formation was slow and after two weeks we were no farther ahead than when we started. So we thought this an ideal case for thyroid extract and forthwith gave him five grains T. I. D. The result was startling. In three or four days the calluses grew and hardened and union became quite firm. But the interesting part follows. When this patient came to the hospital he had a small colloid cyst of the isthmus of the thyroid which rested directly on the trachea and part of the larynx. He said this had been the size of a walnut for years and had never troubled him. It was soft and doughy, and quite movable in all directions. As the fractures began to unite the said cyst began to grow. It became hard, tense and less movable, and grew in size from day to day until finally the patient complained that his "apple choked him," and he was very anxious to have it removed. So under local anæsthesia Dr. Burns and I removed it. It consisted of a fibrous sack filled with colloid material. The wound healed readily and the patient departed happy with his apple gone and his clavicles as strong as ever.

Humerus.

There was nothing exceptionally interesting in our humerus cases excepting one. This case was referred to me last summer by a physician who wished to go away on his vacation. The humerus was broken at about the middle of the shaft. It was a square break with clean cut edges. It was quite easy to maintain good position and rest to the parts. I saw the case first on the fourteenth day after the injury. I observed the case each day until the seventeenth and could find no indications of any callus and the fragments could be moved readily in most any direction. I gave this man five grains of thyroid extract T. I. D. and did not molest the dressing until the twenty-third day, and upon examination I was surprised to find a good callus and a fairly firm union. From that time on repair was rapid. By the end of the thirty-fifth day the man was carrying the arm only in a sling and I referred him to his family physician, who tells me the man has an excellent result. The above are the only two cases where we have used thyroid and are insufficient in number to warrant any deductions, but lead us to believe that thyroid may have a place in fracture repair.

Colles'.

We have made it a rule to refuse to treat a Colles' fracture unless the patient submits to ether anæsthesia. We have never had a refusal when due explanation has been made to the patient. Our results have all been excellent in this series. We have in each case endeavored as far as possible to have an X-ray picture taken both before and after reduction. We have not been particular what form or kind of splint we used, for we have found that once properly reduced most any sensible splint will maintain the integrity. On some we have placed a solid plaster of Paris dressing. Some we have made plaster of Paris anterior or posterior splints or both. Some we have used composition anterior splints that hold the hand in abduction. In all cases we have allowed great freedom of the thumb and fingers, and encouraged the patient to move them regularly. We worked on the theory that movement of the fingers in fractures of the forearm seems to do good and not harm. It does not disturb the relations of the fractured bones and provides a healthy physiological stimulus to the circulation and general trophic condition of the limb. In fact, if the patient cannot move his fingers without discomfort it may be taken as an indication that there is something wrong. The surgeon should ask himself why, and at once ascertain if there is faulty alignment or undue pressure. Colles' fracture should give no trouble provided it has been properly reduced and the callus not meddled with by injudicious passive movement. If this fracture is properly set there is absolutely no fear of a stiff wrist. If you wish a pretty result with a minimum of callus in a lady's wrist, leave your splint on five weeks and don't disturb your callus. In reducing a Colles' we force ourselves to remember that the whole length of the posterior border of the ulna is subcutaneous and is practically straight. On this straight ulna the curved radius rotates like the handle of a bucket. The lower end of the anterior aspect of the radius is concave with a very pronounced curve toward the anterior edge of the lower articular surface. This curve must be preserved or the joint will be out of alignment. We find it difficult at times to raise the shaft of the radius high enough and then to hold it there, but it is absolutely necessary to do this to obtain a good result.

Bones of the Carpus.

We have found that the scaphoid is the most frequently fractured. Clinically the cases appear to be a bad sprain. A diagnosis, however, may be made by the acute tenderness when one makes firm pressure in the "anatomist's snuff box." There is usually inability to hyperextend the hand on the wrist with weight borne on the palm. We place the hand at rest in hyperextension after pushing the fragments forward as far as possible.

Ileum.

We had one interesting case, a piece of bone as large as the palm of one's hand was broken from the anterior and superior surface of the right ileum of a very muscular young man. The fragment persisted in an outward and backward displacement. Being unable to devise any apparatus to maintain its proper position we did an open operation, boring holes with a drill through the fragments and the edge of the ileum, through which we threaded kangaroo tendon. Four such sutures were used. These were drawn taut and tied. The wound was closed, the patient kept quiet on his back and in four weeks it was cemented together very firmly and the patient was able to walk in five weeks without pain, deformity or inconvenience.

Patella.

Both cases reported were treated from the first by open operation; the periostium being sewed and the limb put up in plaster of Paris, in the extended position. After the removal of the cast we did not use force to break up the adhesions but referred them to a masseur of ability and the results were excellent.

Femur.

On one case an open operation was done and a spike driven through the shaft and into the neck and then put up in plaster of Paris. He made a good recovery. The other nine cases were not subjected to open operation. In the eight cases of fracture of the shaft we used Lane plates on three. One man died of a lung complication before the bone had united, the other two cases had an excellent result and so far as known have not had the plates removed. We followed the technique of Lane as far as possible. Not even the gloved hand entered the wound nor touched the plate or screws that were used. All our wounds healed by first intention. In fracture of the femur at either end there are a great many conditions that make fractures of this bone most interesting and difficult to treat. It is the largest bone in the body and subtends the largest muscles. These muscles are always on the alert. By their action they produce shortening and over-riding of the fragments. It is by reflex nervous impulses induced by changes of tension in the muscle, that muscular spasm is produced. Extension by weight and pulley is a most inefficient method of endeavoring to control muscular spasm. The counter extension is the patient's body weight. Every time he tries to change his position by digging his elbows into the bed he alters the tension on his muscles and produces this reflex spasm. When he is placed on a bed pan, when he falls asleep, when the bed is made by his nurse, there is a change in tension with its resulting spasm. From time to time we tried almost every form of pulley, rope, weight, sling, frame, hammock, and mechanical device and we always got from one to two inches shortening and a little more eversion of the foot than was needed. The patients suffered pain and were seldom comfortable. When we made rounds in the morning we found that the rope had broken, or became untied, or slipped off the pulley, or the nurse had removed the weights to readjust the leg and forgotten to hang them on again, or the patient had slid down in the bed until his foot rested against the footboard. When we remarked that the leg and foot were rotated outward we were informed by the interne that the sand bags had either fallen out of bed or the patient had moved them to a more comfortable place. After enduring these annoyances for a long time we finally relegated all such apparatus to the cellar and for a year we have not even mentioned the words rope or pulley in this connection. The newer method we adopted has been so satisfactory and efficacious that we regret that we ever used a weight or pulley. I will attempt to briefly describe our procedure, which is along the lines suggested by Dr. Whitman. An X-ray picture is taken and carefully examined to ascertain the deformity. The patient is examined. If there is only a slight shortening and very little outward rotation and the fragments are impacted we do not break up this impaction. If there is marked rotation outward or marked shortening or both, we do. Outward rotation is more to be avoided than slight shortening, for it causes the patient inconvenience afterward. The patient is anæsthetized, a surgeon's stand is placed under the head and shoulders, the buttocks are supported by a sacral rest, well padded and attached to the end of the operating table. A nurse holds the well limb and the surgeon holds the injured limb. By manipulation he breaks up the impaction if he desires and corrects the outward rotation and then holds the limb in forced extension and marked abduction. A tight fitting piece of stockinet is then slipped over both limbs and covers the abdomen and pelvis and another piece of stockinet completely encases the limb from groin to toes. The bony prominences are then well padded with cotton wadding. A plaster of Paris spika dressing is then applied, by the assistant, which completely covers the foot, leg and pelvis, and is run up to the level of the navel. The patient is then lifted and the supports removed, and then laid flat on the table until the plaster is hard. The patient is then placed in bed. In old people the head and shoulders can be raised quite a bit and we have not had a case of pneumonia in our series. Our patients are remarkably comfortable and free from pain. They are easily handled by the nurses and there is never any dressing to be adjusted. The patient's back is easily massaged and rubbed and bathed, and we have not had any kind of a pressure sore. In three or four days our usual fussy old ladies are always ready to show us that our diagnosis must certainly have been wrong and they are convinced, in their own mind, that they had only the usual "bad sprain" for their hip has not bothered them at all since the splint was applied.

We remove the splint at the end of six or seven weeks, the next week the patient sits up in bed, and the next they are out in a chair or on crutches. We have had several cases where there was absolutely no shortening and in all cases position and motion has been very gratifying indeed.

Tibia and Fibula.

In two cases we had non-union. One we had cared for from the first and the other came from out of town. On one we put a Lane plate and union became firm and strong. Inasmuch as the patient was very thin the plate laid directly under the skin and irritated him so we removed the plate and the wound healed well. The other case we prepared to put on a plate, but while using a steel drill on the two oblique pieces of bone the drill accidentally broke. It seemed to hold the two fragments so well that we simply closed the wound and we secured a good union. I have seen this boy within the past month and he told me he was dancing and walking as well as ever.

The other twenty-three cases presented nothing out of the ordinary.

We used a pillow splint or wooden splints temporarily, but when we reduced the fracture we used a plaster of Paris cast. Where there was marked deformity we reduced under ether, the foot being held at right angles to the leg and care being taken that the foot was not displaced backward upon the leg. The cast is removed in about five weeks in most cases, and if union is not yet firm it is replaced for another week or two. Our results have been good and we have had little or no trouble with stiffness of the ankle joints in our Pott's cases; a few treatments in the baking machine has always relieved what stiffness there has been.

I wish to thank my senior surgeon, Dr. G. M. Price, for the privilege of reporting his cases.

PIN WORMS AS A CAUSE OF APPENDICITIS.*

By ALFRED W. ARMSTRONG, M.D.,
CANANDAIGUA, N. Y.

DOCTOR, do you believe in worms? This is a very familiar question and if answered in the affirmative by the doctor, generally provokes a remark something like this: Well I'm glad you do, doctor, but when I asked Dr. A. he laughed, and although he did not say much, I concluded that he either did not believe in worms or that he considered them to be of little importance as a cause of any disease.

If the sale of worm powders indicates what *mothers* believe, it is quite evident that a great majority of them have been convinced in some way, that intestinal parasites exist and that they produce symptoms of disease which are relieved by so-called worm powders. In the city of Canandaigua, every year, there are sold enough doses of worm medicine to supply ten doses to every child between one and fourteen years of age.

In *olden* times people looked upon intestinal worms as the source of all evil, now the pendulum has swung the other way and they are considered to produce serious lesions only very rarely. Pin worms or oxyures vermiculares, are understood to be the most common of the intestinal parasites found in children and generally inhabit the lower portion of the colon although they sometimes may be found in the small intestine, the stomach, and not very infrequently in the appendix. My attention has been called to this subject by four cases of appendicitis in children which I have seen, in which pin worms were found. These cases all had classical symptoms of appendicitis. Since the removal of the appendices there has been no return of the old symptoms. This we generally consider as evidence that the cause of the symptoms has been removed. It is of interest then to consider whether these worms may inhabit the appendix under normal conditions, whether they are there by accident, whether they precede the advent of inflammation of the appendix, whether they are capable in themselves of entering the mucous membrane and actually producing disease and whether these worms can produce more than one type of disease in the appendix.

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* Read at the Annual Meeting of the Medical Society of the State of New York at Saratoga Springs, May 18, 1916.

It does not seem quite fair to consider the existence of parasites in the intestine to be a *normal* condition, even though it may not be an unusual one. Their presence in the appendix is admitted by all to be rare and yet if it is true that the female lives in the cæcum until impregnation takes place and then moves toward the rectum, it is easy to see how the appendix might get its share.

There seems to be some dispute as to whether the whole life history may be completed in the colon or whether the ova must be swallowed. Frequent reinfections which occur would seem to make it clear that the latter is not uncommon.

The literature on this subject seems to be limited to reports of only a few cases where the oxyures have been found in the appendix and most of the observations which have been recorded have been made in Europe. A recent article by a Japanese naval surgeon[1] who made his observations under the direction of Dr. Max Koch in Berlin during 1914, has been published in this country and covers the subject quite fully. His observations from the standpoint of the pathology of the condition, are particularly complete. A German observer[2] working in Switzerland, has published in German some very interesting observations in which three cases are reported. Charles H. Frazier[3] reported a case to the Pathological Society of Philadelphia, in which he found a dozen oxyures in the appendix and stated as his belief, that the existence of the pin worms in the appendix was probably a predisposing cause rather than the exciting cause of the trouble. Dr. J. R. Taylor[4] of Brooklyn, reported a case to the Brooklyn Gynecological Society in which a number of oxyures were found in the ulcerated appendix. Doubtless a considerable number of such instances have existed but they do not happen to appear in the literature. Animal experimentation can offer but little assistance in investigating the condition since these particular parasites exist only in the human intestine.

It seems quite probable that these parasites can exist in the contents of the intestine without causing any inflammation just as any other foreign body is capable of doing and that their presence may simply be an incident or an accident. A Chinese surgeon working in his own country observed only one case of appendicitis in four and one-half years although the presence of intestinal worms in that country is very common. Metchnicoff is said to have considered the presence of intestinal parasites of such importance, that he advised the examination of the stools in every case of appendicitis. Reindorf states that all cases of appendicitis are to be attributed to oxyuris infection.

All of the observers seem to agree that it is possible for these pin worms to penetrate the mucosa and submucosa of the appendix without causing any inflammation while the appendix is in a normal condition. As proof of this, one observer[5] obtained a specimen which on microscopic examination, showed parasites which had penetrated into the wall of the appendix without causing any evidence of inflammation. There was not even any increase in leucocytes surrounding the parasite. In some instances masses of oxyures laden with eggs were found in the mucosa and the question arose as to whether these female parasites proceeded to this location for the purpose of discharging the eggs or whether they migrated there in search of food. The observer was unable to substantiate either theory.

Bacterial infection is of course the real cause of appendicitis but with the presence of numerous forms of bacteria constantly in the intestinal canal, we must account for their sudden activity on the occasion of an acute attack of appendicitis. When the parasites are found in an ulcerated area, the natural conclusion is that their presence has something to do with the process but the distinction between cause and effect may be difficult. The fact that it is possible for them to penetrate the wall of the appendix under normal conditions, would make it seem possible in the presence of bacteria, for them to act as a predisposing case of inflammation an entering wedge for the bacteria. Then too we have to consider that the appendix is a degenerate organ and therefor more vulnerable.

To return to clinical observations on this subject, there seems to be a pretty well established type of appendicitis in which the oxyures have been found which is characterized by considerable *pain* without any marked *inflammation.* A peculiar change occurs in these cases, viz.: Extensive destruction of the mucosa without any sign of inflammation. In these cases the gross appearance is one in which small hæmorrhagic areas appear in the mucosa and are confined to that part in which the worm is found. A very careful observer[6] of these cases has pointed out that they should not be classed as true appendicitis and another authority designates the condition as appendicopathia oxyurica. The most recent work on this subject describes a typically characteristic picture of appendicitis connected with the presence of pin worms as follows:[5]

"1. The presence of several oxyures in the wall of the appendix.

"2. Necrotic changes accompanied by hæmorrhage in the tissue in the neighborhood of the oxyures.

"3. Extension of the sclerotic degenerated foci in the mucosa.

"4. Relatively good preservation of the tissue in the parts of the mucosa uninjured by the oxyuris, which thus present a great contrast between the much disintegrated and the well preserved parts in the same microscopic field."

The four cases previously mentioned can be classified, I believe, in two groups. Two of the cases seem to be of the type of *painful* appendices the other two were apparently due to inflammation caused directly by the presence of the parasites. Their history briefly stated is as follows:

Case 1451.—A school girl fourteen years of age complained of pain in the region of the appendix, nausea, restlessness at night and of being tired. She had a ravenous appetite and suffered from constipation. The appendix contained some fœcal matter and a half dozen active pin worms. It did not show any external evidence of inflammation and there were no adhesions. The mucosa did not look normal but no careful pathological examination was made. The patient was entirely relieved of the pain in her right iliac region but she did not recover from the restlessness at night, the perverted appetite nor the nausea until after she had had thorough treatment directed against the parasites.

The second case belonging to the same group was a little girl (A. L.) five years old, who had symptoms of indigestion plus pain in her right groin. The night before her operation she fainted away while at the doctor's office and had intense pain or what might better be spoken of as colic. The gross appearance of the mucosa of her appendix was not normal; there were hæmorrhagic areas but no ulceration.

The lumen contained fifteen pin worms. The patient has been relieved entirely of her symptoms since the operation.

The question which arises is whether these two cases might not have been relieved of their symptoms by the administration of proper antiparasitic remedies. This we do not know since neither of the cases were treated for parasites before operation, and since their appendices have been removed, it is too late to try.

The second group comprising two cases represents the type of appendicitis in which necrotic changes have taken place with hæmorrhage in the tissue near the oxyuris. A boy seven years old had typical symptoms of acute appendicitis. He also had an acute appendix. The mucosa was ulcerated, the lumen contained a small amount of fœcal matter, quite a little pus and a nest of oxyures.

The other case in this group was a boy four and one-half years of age who had appendicitis, typical in character. The lumen of the appendix was obstructed by a nest of fifty pin worms at the site of which was a necrotic area. There were also hæmorrhagic spots at various locations in the appendix. These last two cases, I believe, represent the type of appendicitis which is caused primarily by the presence of the parasites.

Consideration of this subject I believe, suggest the following practical thoughts in the treatment of intestinal diseases in children:

1. The possibility of the presence of pin worms in the intestine of children should not be disregarded.

2. Appendicitis is one of the more serious results of parasites in the appendix.

3. Treatment directed against the oxyures may save some child from the necessity for the removal of his appendix.

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2. Dr. Franz Underberger: *Centralblatt fur Bakteriologie und Parasitenkunde,* 1908, 47, page 405.
3. *Proceedings of the Pathological Society of Philadelphia,* New Series, Vol. III, page 126.
4. Dr. J. R. Taylor: *Brooklyn Medical Journal,* Vol. XVIII, page 30.
5. Franz Underberger.
6. Suzeki: *Surgery, Gynecology and Obstetrics,* December, 1915, page 720.

Discussion.

Dr. Frederick H. Flaherty, Syracuse: This interesting paper of Dr. Armstrong's is interesting from the standpoint of the etiology of appendicitis. It has been known for a long time that the so-called pin worms were occasionally found in the appendix. To get a clearer idea, however, it is necessary to consider what are the causes of appendicitis. In the first place, there are a great many causes given for appendicitis. Naturally any disease that is as frequent as appendicitis would have many explanations given for its cause.

The anatomy of the appendix, as you all know, has a very poor circulation which favors inflammation. The lymphoid tissue in the appendix favors inflammation, and this plus your exciting cause sometimes produces the effects which we experience.

Now, we have all found foreign bodies in the appendix of various discriptions; however, they are not as common as ordinarily thought. In about 15 per cent of our cases we find concretions. In a series of perhaps 500 cases, acute cases of appendicitis that I have operated on, I have examined practically every one of them macroscopically and but once have I found the so-called pin worms. That would lead me to think that it was comparatively rare; as I have reviewed the literature I have decided it to be very rare. I believe, however, where there is a poor circulation, where the anatomical conditions are such that predispose toward a disease of the appendix with a mass of feces getting into the appendix, with an appendix that cannot empty itself, I can easily see how the pin worms can get into that mass of feces and act as the exciting cause of appendicitis. In the case that I experienced, there were two distinct masses of pin worms, at least I should say thirty or forty pin worms in each mass which could readily be seen were precipitating an inflammation in the appendix, and I have not any doubt but that was the cause of the disease in the appendix.

What Dr. Armstrong says about the Chinese, for instance, not having appendicitis so frequently as other nations, I think can be explained on the theory that there is this difference in anatomy. I think that the anatomy of the appendix is important as a cause. Some nationalities may have a better blood supply than others and it is an element that has to be considered. That is also true among the Indians; they rarely have appendicitis.

There is just one other point that I want to call your attention to. It does not exactly pertain to Dr. Armstrong's paper, but I think that it is a very important point in regard to the diagnosis of appendicitis in children, and I think that it is worth emphasizing, and it is a thing that is always done by me, because it is difficult with children, little children, two and three years old, to make a diagnosis. I find as much value in the rectal examination of small children where I am considering the possibilities from appendicitis, as I do in anything I do. Often I am able to finally clinch my diagnosis by an examination of the rectum to see whether I can feel an inflammatory mass in the abdomen. I think that it is one thing that never ought to be neglected with the child where you have a suspicion of the diseased appendix.

Dr. Edward W. Peterson, New York City: I have personally encountered three cases in which pin worms were found in the appendix. In two of them there were no symptoms referable to the appendix, the appendices being removed, as a prophylactic measure, in the course of intra-abdominal work. In the third case there were definite evidences of appendicitis, and the operation revealed the presence of pin worms in a badly diseased appendix. No doubt, these intestinal parasites may occupy the appendix and cause few or no symptoms. On the other hand, there is positive evidence that they do have influence in the production of appendicitis. In pediatric practice it might be well, in indefinite cases of appendicular disease, to make routine examinations of the stools. If worms or ova are found, the administration of suitable anthelmintics might possibly clear up the symptoms referable to the appendix.

Dr. De Witt H. Sherman, Buffalo, stated with emphasis what Dr. Peterson said. The stools can be easily examined and they should be examined more frequently. That's a very neglected part of our study. Whether treatment is going to do any good or not depends on the section of the bowels in which these pin worms are found.

Book Reviews

The Tuberculosis Nurse, Her Functions and Qualifications. For Practical Workers in the Tuberculosis Campaign. By Ellen N. La Motte, R.N., Graduate Johns Hopkins Hosp., Former Nurse-in-Chief Tuberculosis Division, Health Department, Baltimore. Introduction by Louis Hamman, M.D., Physician-in-Charge Phipps' Tuberculosis Dispensary. G. P. Putnam's Sons, New York and London. Price, $1.50 net.

This is a good handbook for practical workers, despite some doubtful teachings with respect to phthisisophobia. The author believes that "as far as the community is concerned, fear of tuberculosis is a good, wholesome sentiment. . . . We cannot have too much of a public opinion which declines to be exposed to this disease [why, then, do we get so annoyed when people object to the founding of sanatoria or hospitals in their towns?] .. . . As far as the family is concerned, we have never been able to produce *enough* fear of tuberculosis. It would greatly facilitate the campaign if the first feeling of alarm and apprehension could become permanent. . . . Outside-the-home supervision will create an enormous amount of phthisisophobia. Consumptives are now tolerated because their presence is either unknown or but dimly guessed at; when this ignorance is dispelled . . . a great wave of fear will spread over the community." We must be prepared for the consequent "widespread suffering" which this "next logical step" will occasion. We must provide the machinery to cope with it, in the form of hospital accommodations. The author thinks that the result of such intense phthisisophobia would be a demand for carefulness on the part of the consumptive, and sane toleration of him. Since education has failed we must adopt ruthless, Nietzschean procedure. But we fancy that most thoughtful physicians will continue unhysterical over a disease against which nine out of ten of us have acquired adequate defensive mechanisms by very reason of the fact that is has been practically a universal infection. We could understand this fear in the army from Mars, described by H. G. Wells in one of his books, which, it will be recalled, triumphed easily over the inhabitants of the earth by reason of its members' superior mental development and advanced martial methods, but which soon succumbed to the diseases of men, from which the Martians had been free and to which they were therefore unduly vulnerable. Such a fear could today be inspired only in the ignorant and morbidly selfish and to inspire it would be unworthy business. No enlightened physician or nurse could have such a fear. Humane thinking and acting must not be supplanted by a kultur which, while it might free us of tuberculosis, would also denude us of what is left of the precious Franciscan spirit. If this be reaction, the fanatics may make the most of it. It is not by any form of persecution of the sick, but only by right living on the part of those exposed, that resistance may be developed. It is such things as alcoholism, rather than the tubercle bacillus, that we ought to fear. What the author has to say about the abolishment of poverty by evolutionary or revolutionary reform, with respect to what it would and what it would not accomplish in the way of limitation, is sound.

A. C. Jacobson.

Medical Society of the State of New York

First District Branch

TENTH ANNUAL MEETING, VASSAR BROS. INSTITUTE, POUGHKEEPSIE, N. Y.

Saturday, October 14, 1916, 11 A. M.

1. "President's Address," James E. Sadlier, M.D., Poughkeepsie.
2. "The Crucial Age of Man," W. Stanton Gleason, M.D., Newburgh.
Discussion opened by Henry Lyle Winter, M.D., Cornwall.
3. "Early Diagnosis of Cancer," Parker Syms, M.D., New York.
Discussion opened by S. W. S. Toms, M.D., Nyack.
4. "Address by President of the Medical Society of the State of New York," Martin B. Tinker, M.D., Ithaca.
5. "Experiments in the Use of Moving Pictures in Teaching the Technic of Surgery," John A. Wyeth, M.D., New York.
6. "Experiences in Serbia During the War," Ethan Butler Flagg, M.D., Yonkers.
7. "Colonic Stasis" (Lantern Slide Illustration), William Seaman Bainbridge, M.D., New York.
8. "Diagnosis and Treatment of Acute Infection of the Nasal Accessory Sinuses," Milton A. McQuade, M.D., Newburgh.
Discussion opened by J. E. McCambridge, M.D., Poughkeepsie.
9. "Some Clinical Experiences in Heart Disease," J. H. M. A. von Tiling, M.D., Poughkeepsie.
Discussion opened by Daniel B. Hardenbergh, M.D., Middletown.
10. "Report of a Milk Born Epidemic of Infantile Paralysis," John C. Dingman, M.D., Spring Valley.
Discussion opened by John S. Wilson, M.D., Poughkeepsie.

Luncheon served at Morgan House at 1.15 P. M.

Fifth District Branch

TENTH ANNUAL MEETING, WATERTOWN, N. Y.

Wednesday, October 4, 1916.

Morning Session, 10 *A. M.*

Address of Welcome:

"The Relation of the Physician to State Medical Legislation," Hon. Elon R. Brown, Watertown, N. Y.

"President's Address," James F. McCaw, M.D., Watertown, N. Y.

Symposium on General Infections.

"From the Surgical Standpoint," Gilbert D. Gregor, M.D., Watertown.

"Infection of the Teeth," Harold S. Vaughan, D.D.S., M.D., New York.

"From the Orthopedic Standpoint," Clarence E. Coon, M.D., Syracuse.

Note: Other papers will be read, the titles and by whom, to be announced in the regular program.

Afternoon Session, 2 *P. M.*

"Benign Tumors of the Breast with their Relation to Malignancy," Frederick H. Flaherty, M.D., Syracuse.

"Our Insane and Incompetent," Walter H. Kidder, M.D., Oswego.

"Some Unusual Phases of Lead Poisoning," Edward C. Reifenstein, M.D., Syracuse.

"The Specific Treatment of Hay Fever by Active Immunization," Thomas H. Farrell, M.D., Utica.

"Our Forefathers" (with lantern slides), Eugene H. Carpenter, M.D., Oneida.

Third District Branch

TENTH ANNUAL MEETING, HIGH SCHOOL BUILDING, COBLESKILL, N. Y.

Tuesday, September 26, 1916.

Morning Session, 10.30 *A. M.*

1. "President's Address," Alvah H. Traver, M.D.
2. "Address," Martin B. Tinker, M.D., President Medical Society of the State of New York.
3. "Infective Arthritis," William T. Shields, M.D., Troy.
4. "Poliomyelitis," Augustus B. Wadsworth, M.D., Director, State Hygienic Laboratory, Department of Health, Albany.
Discussion, Herman C. Gordinier, M.D., Troy.

1 *P. M.*

Will be entertained at dinner by the Schoharie County Medical Society, after which the Schoharie County Society will take the Third District Branch Members and friends to the Cobleskill Fair.

The best County Fair in the State. Come and bring the ladies.

Seventh District Branch

ANNUAL MEETING, ROCHESTER, N. Y.

Thursday, September 28, 1916.

Morning Session, 9.30 *A. M.*

"Opening Address," William Mortimer Brown, M.D., Rochester.

"Address by the President of the Medical Society of the State of New York," Martin B. Tinker, M.D., Ithaca.

"Application of the so-called New Wartime Antiseptics to the Surgery of Civil Life," Charles W. Hennington, M.D., Rochester.

"A Composite Osteoplastic Operation for Wide Congential Clefts of the Palate," John B. Roberts, M.D., Philadelphia, Pa.

"Experiences with the Bone Graft in the War Zone of France." Illustrated with moving pictures and slides, Fred H. Albee, M.D., New York.

Discussion: Howard L. Prince, M.D., Rochester.

Adjournment for luncheon.

Afternoon Session, 2 *P. M.*

"Seventeen Years of Organized Malpractice Defence," James Taylor Lewis, New York.

"Epidemiology of Poliomyelitis," Harold Amoss, M.D. of the Rockefeller Institute, New York.

Discussion: George W. Goler, M.D., Rochester.

"The Prognosis in Infantile Paralysis," Robert W. Lovett, M.D., Boston.

Discussion: Brainerd Hunt Whitbeck, M.D., Rochester.

"Practical Methods for Conserving the Bad Risk Patient," George W. Crile, Cleveland.

Discussion: Martin B. Tinker, M.D., Ithaca.

"Is Medicine a Business?" John M. Swan, M.D., Rochester.

Discussion: Henry Lyle Winter, M.D., New York and William B. Jones, M.D., Rochester.

Deaths

AUGUSTUS ASSENHEIMER, M.D., New York City, died August 24, 1916.

JOHN ALVA McCORKLE, M.D., Brooklyn, died August 15, 1916.

WILLIAM BOILEAU MARPLE, M.D., New York City, died September, 1916.

WILLIAM H. B. PRATT, M.D., Brooklyn, died August 27, 1916.

CLINTON DEWITT VAN DYKE, M.D., New York City, died August 10, 1916.

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ORIGINAL ARTICLES

THE RESULTS OF CRANIAL DECOMPRESSION IN SELECTED TYPES OF CEREBRAL SPASTIC PARALYSIS DUE TO HEMORRHAGE.*

By WILLIAM SHARPE, M.D.,
NEW YORK CITY.

INTRODUCTION.

THIS paper is a report of the operative treatment of 219 selected cases of spastic paralysis showing intracranial pressure both by an ophthalmoscopic examination and the measurement of the pressure of the cerebro-spinal fluid at lumbar puncture; these operated patients up to April 1, 1916, are the ones selected as being suitable for the operation from the examination of 954 cases of spastic paralysis, i. e., one in about every four cases examined. Although three years have not yet elapsed since the first operation, which was performed in June, 1913, yet the results have been so gratifying and even startling, that Dr. Farrell and I feel justified in presenting the progress of the cases treated by us up to the present time. Naturally, sufficient time has not yet elapsed to permit us to say whether the improvement in our cases will be a permanent one or not; and yet, in view of the pathological lesion producing this type of spastic paralysis, we do not see why the improvement should not become more and more marked as the children grow older.

Let me emphasize (for fear of being misunderstood), first, that we are *not* operating upon the mentally deficient, the constitutionally inferior and idiots in the hope of restoring them to a normal mentality; and secondly, that we are not operating upon microcephalic children in the belief that the brain will develop and become normal by enlarging the cranial capacity (a belief long exploded and buried); and thirdly, that we are not operating upon cases of spastic paralysis due to a lack of development and malformation of the cortex of the brain and the pyramidal tracts—cases forming at least one-half of the total number of spastic paralysis—the so-called Little's Disease, in which a cranial operation will do no good and from the very pathology of the condition a cranial operation can be of no benefit to the patient. On the other hand, we *are* operating upon those cases of spastic paralysis giving a history of difficult labor with or without instruments, and upon opthalmoscopic examination, the definite signs of increased intracranial pressure are to be seen upon the fundus of the eye, and confirmed by the measurement of the pressure of the cerebrospinal fluid at lumbar puncture, i. e., only those cases of spastic paralysis which show definite signs of increased intracranial pressure, whether this condition is associated with impaired mentality (and it very frequently is as the result of prolonged pressure upon the cortex of the brain) or whether the size of the head is unusually small or unusually large; if, in these latter cases, there is an increased intracranial pressure, then that pressure should be relieved in the hope that the spasticity will be lessened, and the mentality be improved. Naturally, the most satisfactory and desirable patients for operation are the ones with no impairment of the mentality, but these patients are rare when there is intracranial pressure present; much more commonly do we find a more normal mentality in those cases of lack of development and malformation of the pyramidal tracts, unless very extensive.

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The condition of spastic paralysis results most frequently from a lesion of the brain occurring before birth, during birth or shortly after birth. It is characterized by more or less complete paralysis of the part affected, and is associated with a stiffness or spasticity depending upon the extent of the involvement of the pyramidal tract; this hypertonicity produces muscular contractures and deformities, usually flexor in type, with a corresponding over-stretching of the opposing muscular groups, usually the extensors. In mild cases, however, the spasticity may be so slight as to cause little or no deformity, but merely an awkwardness of the part affected. Frequently, athetoid movements of the arms and legs may be observed, and epileptiform attacks, commonly of the Jacksonian type, may occur.

In a large percentage of cases as the child grows older, not only do the spasticity and its resulting contractures increase, but also the mentality of the child becomes impaired, and this impairment continues until the child may be considered a defective or still further an imbecile, and only too frequently an idiot.

One of the most common lesions of the brain producing spastic paralysis is that of intracranial hemorrhage of the new-born. It is of venous origin most frequently, especially the veins overlying the cerebral cortex and the venous tributaries of the longitudinal sinus, and in the more extreme cases, even the longitudinal sinus itself may be ruptured; the overlapping of the parietal bones during parturition is the common cause for the injury to the sinus. Naturally, the use of forceps in difficult labor is an important causative factor in a large number of cases. However, any prolonged difficult labor increasing the cranial venous stasis and partial asphyxia of the child, may be sufficient to rupture the delicate vessels overlying the cortex of the brain and in this way, a hemorrhagic clot forms over the surface of the cortex. In some cases, the hemorrhage is cortical or subcortical, and therefore, in these cases, direct injury and damage is done to the cortex itself—even a destruction of cortical nerve cells and their fibers, whereas in the usual cases in which the hemorrhage occurs upon the cortex rather than within the cortex, any damage to the cortex is the result of the pressure of the overlying clot and not a primary destruction of the cortex itself, i. e., if it were not for the pressure of the overlying hemorrhagic clot, the cortex would not be damaged at all, and its nerve cells would be able to functionate normally; on the other hand, if the hemorrhage is in the cortex or is subcortical, then a real destruction of tissue occurs and once destroyed, there is no regeneration.

According to the extent and pressure of this hemorrhagic clot upon the cortical surface do we find clinically the signs of such interference of the pyramidal tract; if over the upper portion of both motor areas, then both legs are affected, and a spastic paraplegia results; if over the upper two-third of both motor tracts, then both the arms and legs are involved and a spastic diplegia results, whereas if the entire motor area of both cortical hemispheres are compressed, then the extreme form of spastic diplegia results—legs, arms, throat and face all affected; these extreme cases are the most pitiful ones and fortunately they rarely live beyond the age of puberty. In the majority of spastic cases, however, the hemorrhage extends over one cortical hemisphere alone, the other hemisphere remaining unimpaired so that a spastic paralysis of the leg or arm occurs opposite to the hemisphere affected; if the hemorrhage extends only over the upper portion of the motor area, then a monoplegia of the opposite leg results, and if over the upper two-thirds of the motor area, then a spastic paralysis of both the arm and leg, and if over the entire motor area, then a total spastic hemiplegia of the opposite side of the body occurs. The upper portion of the motor area is usually more compressed than the lower portion because the hemorrhage is here greater, and as the clot extends down over the cortex, it rapidly thins so that we may have a marked spastic paralysis of the leg, and yet the arm be but slightly affected —merely an awkwardness, and the face not at all involved. Then again, absorption of the clot is a most important factor in lessening the extent of the paralysis; in some cases of mild hemorrhage the clot may be entirely absorbed, only a few fibrous strands remaining as evidences of its existence; these are the cases that later may develop epilepsy in its various forms and show other signs of cortical irritability and instability.

Intracranial lesions due to the various forms of hemorrhage comprise almost 70 per cent of the cases of spastic paralysis in children, whereas agenesis, lack of development and malformation of the cortex and pyramidal tracts, and that group of spastic cases due to a meingo-encephalitis complicating measles and scarlet fever constitute most of the remaining 30 per cent of the cases. Those cases due to agenesis or lack of development of the cortex all show marked impairment of the mentality, whereas the ones due to lack of development and malformation of the pyramidal tract beneath the cortex may show little or no impairment of the mentality; naturally, these spastic children as they grow older all become more or less impaired mentally, but this impairment, when the pyramidal tract alone is affected, is one of "deprivation"—in that they cannot develop their faculties by associating with other children, playing games and using all the means so essential for the normal development of children. Their lives are so restricted by their physical disability that they shrink within themselves until their condition in the milder forms becomes one of mental inferiority and backwardness, and may even reach that of imbecility. Naturally, these cases of absence or lack of development of the cortex or pyramidal tract cannot be improved by an operation; they do not and cannot show signs of increased intracranial pressure, and therefore, they are easily excluded by an opthalmoscopic examination and the measurement of the pressure of the cerebro-spinal fluid at lumbar puncture from the preceding cases due to hemorrhage.

A meningo-encephalitis resulting from any infectious condition, measles, scarlet fever, etc., produces a large number of cases of spastic paralysis occurring in the earlier years of youth. In this condition, the cortex itself is involved to a greater or less degree, an infective process occurs and the cortex itself is damaged. It is a very frequent cause of epilepsy in children, and a condition most difficult to improve by any treatment. A number of cases of spastic paralysis in children occur after a severe attack of whooping cough; whether this is the result of meningo-encephalitis, or a rupture of a cortical vessel due to the increased venous stasis at the time of the severe coughing spells is not known; I have, however, operated upon one child of eight years of age who had developed Jacksonian epilepsy with temporo-sphenoidal "fits" immediately following a severe attack of whooping cough; there was neither paralysis nor spasticity; over the anterior portion of the left temporo-sphenoidal lobe was a bluish clot the size of one silver dollar in the pia-arachnoid meshwork and was undoubtedly due to a rupture of one of its cortical vessels.

In these cases of intracranial hemorrhage, whether in children or in adults following a facture of the skull, unless the hemorrhagic clot depresses the motor area of either hemisphere, or interferes with the pyramidal tracts, then there will be no paralysis, and it is possible for large intracranial hemorrhages to occur, and yet there is no resulting paralysis unless the motor tract is involved; that is, the impairment of the special senses and mentality may overshadow the paralysis, and may even exist alone. In this manner it is possible for the impairment of the mentality to be the chief complaint. However, as in adults with intracranial lesions, a definite disturbance of even the more silent areas of the brain tends to increase the deep reflexes of the extremities, and if the motor tracts are still more affected, then a definite spasticity results.

The treatment of spastic paralysis has been most discouraging and unsatisfactory. These cases have been the despair of not only the general practitioner, but the bane of existence to the neurologist and especially to the orthopedist; naturally, little if anything can be accomplished in the extreme cases due to lack of development and malformation of the cortex and the pyramidal tracts; it was only in mild cases that any improvement could be expected and unfortunately the percentage of these cases permanently improved was very small indeed.

A number of years ago there were many theories regarding the cause of spastic paralysis. These cases were usually grouped among the mentally defective and classified as defectives, imbeciles and idiots with or without paralysis. Those cases of spastic monoplegia or hemiplegia without marked signs of mental impairment were very puzzling. For many years, it was believed in cases of imbeciles with unusually small heads, that their mental impairment and possible spastic paralysis was due to premature closure of the sutures of the skull which prevented the normal development of the brain—that is, the skull was too small for the brain. The truth was not ascertained until later that the skull did not enlarge because the brain itself did not enlarge and develop normally—that is, the size of the cranium is an index of the size of the brain—only quantitively however, not qualitatively. Many cranial operations were devised to offset this supposed premature closure of the sutures of the skull, and so allow the brain to develop—as they thought it would. Trephine openings of various sizes were made in the cranial vault in the hope that the brain would have more room to develop; at times, the dura was incised, but more frequently the dura was left intact. There was no selection of cases made—the fact that the cranium was small was considered sufficient cause for the undeveloped brain; whether there was present an increased intracranial pressure or not was not considered nor ascertained before selecting their cases for operation; and yet, it is surprising that a few of their cases did improve slightly, showing that these few cases, at least, must have had an increased intracranial pressure resulting from a hemorrhage, and that even the inadequate operation was sufficient to produce some improvement. Efforts were made to separate the sutures of the skull under the impression that they had united prematurely and this tremendous operation was repeatedly performed with little or no result. As the dura in the extreme cases of spastic paralysis due to hemorrhage may be fibrosed and thickened three and four times its usual extent, so that it becomes inelastic as in adults, it would have been possible to remove the entire vault of the skull, and yet if the dura were not incised, there could be no relief of pressure obtained nor any enlargement of the intradural capacity possible; that is, to obtain any decompression effect, the dura must always be incised and allowed to remain open; to resuture it necessarily prevents any permanent relief of the pressure.

During the past few years, the treatment has been directed towards an improvement of the results of the central intracranial lesion upon the extremities, and it has been a most discouraging field of work.

The operations which have been used in the past and are still being used to improve the conditions of spastic paralysis, namely, tenotomies, tendon lengthenings, sections of the posterior nerve roots, alcohol injections of peripheral nerves, nerve resections and other operations, are, in our opinion, of only temporary benefit, and I have yet to see a case in which the spasticity has not returned, in some degree, within one year. In all of our cases treated by the operations just mentioned during the past two and one-half years, the spasticity began to reappear within one year after operation.

Tenotomies have been unsatisfactory. Tendon lengthenings alone are satisfactory in only very mild cases. Foerster's operation for sectioning of the posterior nerve roots of the spinal cord is advocated merely to lessen the irritability and the instability of the cortex of the brain by decreasing the number of afferent stimuli reaching the spinal cord and also to affect the reflex mechanism of the spinal cord; besides being a rather formidable and long operation for a child, the lessening of the spasticity is only temporary, few cases being reported improved longer than one year. Our experience with seven cases has been the same. The injection of alcohol into the peripheral nerves (the Allison and Schwab operation) produces immediate paralysis and a temporary relief from spasticity; in our experience of thirty-one cases, however, the spasticity has returned within one year. With nerve resections (Stoeffell's operation), we have had no experience. Besides, in these operations, we do not in any way "get at" the primary cause for the spastic paralysis, namely, the lesion of the brain, but they are merely peripheral operations to relieve the spasticity temporarily, in the hope that, before a recurrence of the spasticity, sufficient power will have returned to the opposing muscular groups to re-establish the muscle balance.

Little, if anything, has been done to improve permanently the condition of spastic paralysis, and we offer our observations in the hope that they may lead to a more satisfactory solution of the treatment of these pitiful cases. Our attention was first centered on the importance of relieving the increased intracranial pressure as a means of lessening the spasticity and improving the mentality of these children, by a decompression operation performed by me at the Nassau Hospital, Garden City, Long Island.

The case, referred by Dr. L. B. Rogers, was one of a child nine years of age, who after an easy delivery was apparently normal in every way until the ninth month of age, when it suddenly had a series of epileptic attacks; after these attacks had subsided, it was observed that there was a total left hemiplegia with exaggerated reflexes; the left arm and left leg became spastic and gradually assumed the flexor contractures so typical in these spastic cases. Three years ago, the patient had another series of convulsions and since that time these convulsive seizures of greater and lesser severity have continued almost daily. The mental impairment was moderate. Every method of treatment had practically been given up as useless. Last June another series of convulsions began and during the four days preceding my examination of the patient, 302 attacks had occurred; the child was in a condition of status epilepticus—one convulsion following another; the almost continuous administration of chloroform was of little value. In addition to the typical left spastic hemiplegia, the patient had at this examination double "choked discs" as revealed by an ophthalmoscopic examination—that is, a high intracranial pressure, the pulse was 54 and the respiration was of the Cheyne-Stokes type. As artificial respiration and oxygen were being used (as a last resource) I advised a right subtemporal decompression in the hope that a relief of the increased intracranial pressure might improve the condition of the patient. No anæsthetic was necessary, the patient being unconscious. Upon incising the dura, which was exceedingly tense, the cerebro-spinal fluid spurted to a height of six inches; the cortex was œdematous and swollen, and upon enlarging the opening upwards, a fibrous mass apparently the residue of an old cortical hemorrhage, was exposed—lying upon the cortex and extending upwards beneath the margin of the decompression opening. As the condition of the child was bad, I decided to remove the mass at a later operation. Owing to the mere relief of the intracranial pressure, the child became conscious at the end of the operation and an uneventful recovery occurred—the child leaving the hospital the eleventh day post-operative. The striking feature of the case, however, was the gradual lessening of the spasticity and the contractures of the face, arm and leg, and this improvement continued until the child began using the leg freely and the left arm and hand for picking up articles for the first time in its life; there was also a definite mental improvement.

The thought then occurred: Why not do a decompression operation in those selected cases of spastic paralysis having a possible hemorrhage on the brain and showing signs of increased intracranial pressure And so I began having the eyes of spastic children examined carefully with an ophthalmoscope for signs of increased intracranial pressure. It was very surprising to ascertain that of the cases examined—a large number did show mild though distinct signs of increased intracranial pressure—that is, a dilatation of the retinal veins, and a hazy œdematous blurring of the nasal margins of the optic discs; many of them showed even mild signs of old secondary optic atrophy—rather whitish discs and the physiological cup shallow from scar tissue formation. Dr. Farrell and I then began to select for operation such cases having these definite signs of increased intracranial pressure from various orthopœdic clinics—especially the extreme cases and the ones which had received the treatment of tenotomies, tendon lengthenings, alcohol injections, braces, massage, etc. Since then up to April, 1916, we have operated upon 219 cases, most of them being of the extreme type, and the results have been very gratifying. Of these 219, 76 were diplegics, both arms and legs being affected; 35 were paraplegic, only the legs being involved, while the remaining 108 patients were hemiplegic—the leg usually being more affected than the arm of the one side. Epilepsy in its various forms was present in 103 of these 219 cases, and the improvement in 63 of them has been complicated because the epilepsy has continued, but in a less severe degree, although in about one-half of them the convulsions disappeared, especially in the younger children. Sixteen of our operated cases have died, a mortality of 7 per cent, and each of them within ten hours after the operation; nine of these were under two years of age, of the extreme diplegic type, emaciated, and therefore very poor operative risks; it seems that in them any alteration of the high intracranial pressure and circulation was sufficient to upset the patient—the temperature rising to 108 degrees within two hours after the operation; possibly a too rapid escape of the cerebro-spinal fluid interfered with the circulation of the basalganglia and therefore the high temperature resulted. We are now controlling this loss of cerebro-spinal fluid by elevating the head and shoulders of the patient during the operation according to the rate of its flow and with much better results; the post-operative temperature in these cases can be either raised or lowered by elevating or lowering the head and shoulders.

Not only has there been a lessening of the spasticity of the arms and legs affected in these cases selected for operation, but there has been a definite amelioration of the mental condition of the patient, to such a degree that in the older children we obtain the co-operation of the child in the carrying out of the after-treatment—a very important advantage of this operation.

METHOD OF PROCEDURE.

In those cases of spastic paralysis of the hemiplegic, paraplegic or diplegic type, with a definite history of difficult labor with or without the use of instruments, in which, upon ophthalmoscopic examination, signs of increased intracranial pressure are shown in the dilated retinal veins and a blurring and haziness of the optic discs, especially of their nasal halves, and the cerebro-spinal fluid at lumbar puncture is under high pressure, then a large right sub-temporal decompression is performed to relieve the intracranial pressure. If the intracranial pressure is extremely high, and remains high after the operation, a left sub-temporal decompression is performed the following week, the operative recovery requiring only a week or ten days.

The operation itself consists of a vertical incision over the side of the head two and one-half to three inches in length extending from the parietal crest down to a point overlying the zygomatic arch and just anterior to the external auditory meatus; that is, to the lowermost point of the cranial cavity. The fibers of the temporal muscle are separated longitudinally and then a small opening in the squamous bone made by the Doyen perforator and burr is enlarged by rongeurs to a diameter of two to three inches. The dura is now incised in a stellate manner allowing the brain to expand, and in this way the increased intracranial pressure is relieved. The duration of the operation should not exceed one hour—usually it is only forty minutes. Absolute hæmostasis is essential—the less the loss of blood the less the shock. The loss of a large amount of cerebro-spinal fluid should be prevented by elevating the head during the operation, and if the post-operative temperature exceeds 104, then the head of the bed should be lowered.

The usual pathological findings are definite fibrous or cystic formations resulting from a supra-cortical hemorrhage occurring at birth. These pathological lesions are treated according to the individual findings—removed, punctured, the outer wall of the cyst excised, and very frequently, merely let alone; that is, more damage to the cortical nerve cells may be done by endeavoring to remove the lesion, and therefore it is wiser in many cases not to attempt it. The decompression operation is performed merely to offset the local effect of the pressure of this hemorrhage with cystic formation by lowering the general intracranial pressure, and consequently lessening the spasticity and mental impairment. In eleven cases the hemorrhagic cyst was cortical and sub-cortical, and naturally in these patients the nerve cells and their fibers must have been primarily damaged, so that a marked improvement cannot be expected in them. In 107 patients at operation the supra-cortical hemorrhagic cyst was visible, and in all of the operated patients, the intradural pressure was abnormally increased. Permission for autopsy is always obtained before operation in all of our patients—both private and ward patients—in order that the diagnosis may be accurately checked; in only one case at autopsy did we not find the results of a former hemorrhage.

The after treatment, briefly, consisted of the routine orthopedic treatment which the patients had all had before the operation; the correction of deformities by tendon lengthenings, or merely stretchings of the contracted muscles, the maintenance of corrected positions through the employment of especially adapted braces, and skilled massage, particular attention being given to the weakened and overstretched muscle groups; the usual systematic course in muscle training has been carried on as before the operation.

The improvement in our cases selected for operation has been so marked—not only a lessening of the spasticity, but a definite amelioration of the mental condition of the patient—that we believe a cranial decompression is indicated in those cases of spastic paralysis showing an increased intracranial pressure by the ophthalmoscopic examination and confirmed by a measurement of the pressure of the cerebrospinal fluid at lumbar puncture. Of the 954 cases of spastic paralysis, which we have examined, about 26 per cent have shown signs of intracranial pressure, and are, therefore, in our opinion, patients that can be very much improved. This operation is not a formidable procedure for one trained in neurological surgery; all of the patients except thirteen, who were chiefly mentally impaired children, have improved and we have had but sixteen deaths—nine being extreme diplegics; two from pneumonia; two from infection; two from high temperature and shock, and one with an associated enlarged thymus gland. The anæsthetic should be administered by an expert.

Naturally, we do not believe that all cases of spastic paralysis should have a cranial decompression; in some mild cases tendon lengthenings alone are sufficient, and this is especially true in the absence of mental impairment. But those selected cases of spastic paralysis, particularly of the hemiplegic and paraplegic types, which show the definite signs of increased intracranial pressure are the cases that can be very much improved by such a procedure. The cases of agenesis and maldevelopment of the cortex, of course, cannot and do not show signs of increased intracranial pressure, and are therefore easily excluded by an ophthalmoscopic examination; besides, the cases of lack of development of the cortex and pyramidal tracts are usually premature babies, being born at the seventh or eighth month, or in malnourished babies after a number of children have been born; whereas in the meningitic type of spastic paralysis, the history of an acute illness with high fever is usually obtainable associated with convulsions. A careful history is very important. Of the 219 operated patients, only twenty-six were not first children; only eight were not full term babies; only forty-nine did not have convulsive twitchings immediately after birth, and in only twenty-one was the spasticity noticed before the eighth month after birth.

We are having moving pictures taken of the patients before operation, and at regular intervals after operation in order that the physical impairment of posture and gait may be accurately recorded.

Likewise, a Simon-Binet test of the mentality is being recorded before operation and at regular intervals after operation; the mental improvement in some of our cases has been very impressive.

A Wassermann test of both the blood and the cerebro-spinal fluid is made in all patients.

In conclusion, I wish to repeat that this paper is merely a report of the work being carried on to improve the condition of selected cases only of spastic paralysis. Naturally, the earlier after birth the diagnosis of intracranial hemorrhage is made, so that the blood can be drained off in fluid form by a simple operative procedure, the better and more normal the child to be obtained; I have operated upon five children on the second day after birth, and two on the third day, and apparently normal children, except one that died, have been secured. Most of the older children in this series have really been derelicts at the time of the operation. The operation is by no means a cure and possibly the improvement in our selected cases is only a temporary one—we cannot tell. But from the pathology of these selected cases operated upon and the general continuous improvement which has resulted and is still progressing, we feel justified in making a report of the work in the hope that it may throw some light upon the treatment of this very pitiful condition.

Discussion.

Dr. Charles Gilmore Kerley, New York City: The work of Dr. Sharpe has been quite successful in several cases. The knowledge of this spreads rapidly among physicians and among parents of defective children. As a consequence there is the danger of a propaganda of operative procedures being inaugurated which means that many cases not suitable for operation will pass to the hands of the surgeon. It is for this reason that Dr. Sharpe asked me to say something about the cases not suitable for operation. Dr. Sharpe in his paper, referred to those that may be operated upon with benefit, the cases of the so-called spastic type. There are vast numbers of defectives that do not come under this category. Among these we have the mongolian, the cretin, the hydrocephalic, the microcephalic and the so-called feeble-minded. By the latter we mean the child that inherited mental defects, a case in which there is simply poor gray matter because of ancestral taints. The cases which Dr. Sharpe wishes us to understand that may be benefited by operation are those in which damage to the brain was occasioned by trauma of some nature resulting in hemorrhage or other injury. In all the traumatic cases that are due to injury, the great majority of them are due to injury at birth, pressure on the head or the use of forceps unskillfully manipulated. These cases comprise a great majority of the so-called spastic type.

Dr. Brainerd Hunt Whitbeck, New York City: This subject is of the greatest interest to the orthopedic surgeon as well as to the pediatrician; for a great many years these cases have come in large numbers to the orthopedic hospitals and in private practice, seeking relief from the deformities which progressively follow the spasticity. In the past we have used plaster of Paris, braces, and tenotomies for correction of deformities, but in a very short time, within a year or so, as Dr. Sharpe has said, there is a recurrence of deformity and either the operation has to be done over again or the case abandoned. I have seen a number of these cases such as Dr. Sharpe has operated on, and have seen them before and since their operations, and the improvement in some of them has been very decided.

The importance of determining the cases that should be operated upon should be emphasized with great force. Since Dr. Sharpe has been operating on these cases, the subject has come before the general surgeons and others, and a number of cases have been operated upon which are not proper in any respect. The examination has been incomplete or none at all, and cases of spastic paraplagia with markedly mental deficiency have been chosen and operated upon, which should not have been done. Emphasis should be placed upon the selected cases. The cases which should be operated upon are those which show only beginning changes in the retinal field, not the advanced nerve atrophy and choked disc, but those which have only a congested appearance of the retinal field, showing evidence of intracranial pressure, but not of an advanced stage. The earlier that this condition can be recognized, confirmed by the lumber puncture, the more suitable the cases for operation.

He spoke of the effect of the operations that had been done years ago, twenty-seven years ago, of decompression. The operation was an exploratory operation, but the compression was not relieved because the table of bone was replaced.

As evidence of that condition, I want to cite one case, which, at the age of seven years, had an attack of scarlet fever ushered in by convulsions, and the child was left with a right hemiplegia. Within a year or eighteen months following the attack, when the child was well, an operation was performed on this patient, a left-sided decompression. A conjestion of the meningial blood vessels was found, but no destruction of the brain cells and no clot. The table was replaced.

I neglected to say that this child had had repeated grand mal and petit mal attacks since the beginning, and these epileptiform attacks had gone on for several months with bad circulation of the right arm and foot, and a marked hemiplegia.

The convulsions continued following this operation, and about eighteen months later, a second operation was done and the table was left out. From that time on there was a gradual improvement, so that within eighteen months after the second operation, the convulsions had ceased and the child's mentality had improved.

About eight months after the second operation the child came under my care, I put on a brace with a stop joint, which prevented the drop foot, so that the child was able to walk very much better, and it controlled the muscle action.

The child has not had a convulsion for three years, the mentality is improved, her disposition is better, the color of the right arm and leg has returned to normal. There is some lack of development as compared with the normal side, but she uses her hand better, she walks with almost no limp, the brace having been left off for the last two years, showing the effect of the actual decompression which Dr. Sharpe advocates.

Then, I would like to say something confirming Dr. Kerley's warning for better obstetrics. Cases of the above type are coming in large numbers to the Hospital for Ruptured and Crippled and other orthopedic hospitals. There is another type of case which is sometimes due to careless obstetrics and that is the birth palsys. They are on the increase. In my opinion, a great many of those cases could have been saved by more care, more efficient obstetrical work. Of course, operations upon these obstetrical palsys, suturing the torn nerves, tenotomy of the tendons which cause the contractions, etc., have given us an opportunity to improve a good number of these cases, and we can prevent deformities by careful attention from the beginning.

Dr. Philip I. Nash, Brooklyn: I would just like to ask, are there any tables for comparison of cases that have been operated on for decompression, and those in the early stages that a spinal puncture only had been made that would show justification for so radical a procedure?

Dr. Herman G. Matzinger, Buffalo: I want to say that I am much interested in the work of Dr. Sharpe, which I only know through his writings and through what his associates in New York let us know in Buffalo. He shows admirable good judgment in the selection of his cases, but I want to ask where he gets the verification of the 70 per cent of hemorrhages in these cases of spastic paralysis.

I don't happen to know of such statistics, and from my own study and knowledge, which may be very limited, I do not see how it can be determined that so large a proportion are due to hemorrhage. Indeed, I feel certain that there is no good reason for assuming that hemorrhage has occurred when a history of difficult labor is obtained from the parents. The matter of injuries during birth is, I think, very much over-estimated. There is scarcely a child born whose head is not pressed out of shape as it passes through the straits, and some heads are so tremendously distorted that the mothers do not like to show the child. Now, if hemorrhage is so easily produced during labor, why is it that so many escape? Does it not somehow suggest that there are other conditions and causes which may either determine hemorrhage or paralytic effects without hemorrhage?

As to the results obtained by operation, it must not be forgotten that these cases are often markedly improved by changed surroundings and improved care. Especially is this true when they are not only trained in motility, but when the subnormal mentality, which exists in practically all cases, is properly met and managed.

Dr. T. Wood Clarke, Utica: I was unfortunately delayed and did not hear the first paper, so it may be the question that I am going to ask was answered.

The thing that has puzzled me in these cases is the decision of just which cases to operate on in the first few days of life. I believe that if you get one of the cerebral hemorrhages and can diagnose it in the first few days, that the quicker it is turned over to a brain surgeon, the better.

I saw a case in Utica recently where the child had been delivered by a good obstetrician. The woman had a contracted pelvis and it was a very prolonged instrumental labor under "Twilight Sleep." I saw the baby when it was two weeks old. By that time, it had lost three pounds, its head was rapidly increasing in size, its eyes were thrown down, and it had a nystagmus up and down, but no paralysis.

There was nothing upon which I could put my finger, except that there was evidently an occipital fracture which since then has healed with a bony covering. The case seemed to be about as hopeless as one could get, and I wanted at the time to have an exploratory, but the family didn't think it worth while. Besides the thing had been going on two weeks. In the meantime, the mother had lost her milk and the baby was vomiting everything. The vomiting appeared more cerebral than gastric, and the best thing to do seemed to be to get the baby on some concentrated food. Milk and soy bean were used.

The baby's head continued to grow. At the end of about six weeks, you could put your fingers in any one of the sutures. There was no gain in weight. About two or three weeks ago, that infant suddenly took a change for the better. In two days, the circumference of its head decreased a half inch. The child showed decidedly more interest in its surroundings. It began taking more food. In about ten days, the sutures had all come together and the metopic suture which came away down almost to the eyes is now closed.

The baby is now about two months old, and is taking three ounces of food. It gained four ounces in two days. It lost its nystagmus. Its eyes are looking straight at things, its hearing is good and at two months of age, it is able to hold its head up when it is lying on its face. It has begun playing with the buttons on its mother's dress. I feel that that baby, which I thought was at best going to be a low grade moron will be perfectly normal, and absolutely all that we did was to keep the youngster alive with concentrated food.

I am a thorough believer in operating early in these cases, but the question is where are we going to draw the line. We certainly do get a number of spontaneous recoveries. If the men who have been doing more work in this have any suggestions as to indications for operation, I would like to hear them.

Dr. William Sharpe, New York City: I am afraid that one point of my paper has been misunderstood by Dr. Matzinger—regarding the enlargement of the scope of this operation to include cases due to lack of development or cases of meningitis. How can any cranial operation increase the mental capacity or lessen the spasticity in the child, if there is a lack of development, if the child has not as many nerve cells or nerve tracts as it should have? Obviously, no cranial operation can help lack-of-development cases.

The keynote of this work, I feel, is to have the medical profession realize that cases of spasticity and cases of mental impairment can be caused by hemorrhage, and that the hemorrhage, in the majority of cases, does not primarily destroy brain tissue; it is the pressure of the supra-cortical hemorrhage that causes the mental impairment and spasticity secondarily.

These are only selected cases which have been operated upon. So far as we can determine clinically, I do not think that we can differentiate more than fifty per cent of the cases due to hemorrhage. As to the statistics regarding the large percentage of spastic cases that are due to hemorrhage, I may only state that autopsy records show that practically seventy per cent of spastic cases are due to intracranial hemorrhage.

Naturally, the preventive measures are the ones to be employed, if that is possible, to prevent these conditions occurring, because unless they are recognized and operated upon shortly after birth, it is difficult to obtain a normal person. Most of my cases have been about five, six or seven years of age. They are practically derelicts at that time, and your only hope it to improve them. I doubt if any of those children will become perfectly normal children.

Concerning the selection of cases—I think that only those cases showing definite signs of increased intracranial pressure should be operated upon. Otherwise, I think the operation will soon be discredited, if doctors operate upon lack-of-development cases and upon meningitic cases, where there is no increased pressure; naturally, an operation to relieve pressure can be of no benefit if there is no intracranial pressure to relieve.

I have used lumbar puncture for diagnostic purposes chiefly, and also to exclude syphilis. Similar to fractures of the skull, however, a child may have an intracranial hemorrhage and yet at lumbar puncture the cerebro-spinal fluid is clear; this is also true in a number of these cases of children at birth, and upon operation you find a large sub-dural hemorrhage. Only two weeks ago I had such a case where a large intracranial hemorrhage was found both above and below the tentorium, and yet the cerebro-spinal fluid at lumbar puncture was clear.

As to Dr. Clarke's question, which cases to operate upon; besides the history, which is usually that of a first child and a difficult labor, the early signs are very frequently convulsions immediately after birth; if not convulsions, then an abnormal stupor; at times, apparently a normal child until the eighth or ninth month of age, when it is observed that there is a stiffness of one leg or arm which increases. The child does not progress as it should normally—does not hold up its head, sit up, etc., until several months after it normally should do so. The examination reveals a high intracranial pressure, as revealed in the blurring of the fundus of the eye, so that the optic discs are obscured, and then, by a measurement of the pressure of the cerebro-spinal fluid by a lumbar puncture, the high intracranial pressure is definitely established.

The technique for measuring the pressure of the cerebro-spinal fluid is as follows: With the child lying upon its side so that the spinal canal is on a direct level with the median plane of the head and thus the spinal canal and the intracranial subarachnoid space absolutely level, the usual needle is then introduced into the spinal canal in the lumbar region; after waiting until the child is absolutely quiet, then the stylet of the needle is withdrawn so that the fluid ascends the tube. Normally the pressure is from eight to twelve centimeters, whereas in these spastic children, due to an intracranial hemorrhage, the fluid ascends beyond twenty centimeters which I consider distinctly pathological. As far as an increase of pressure is concerned, the highest pressure so far has been thirty-seven centimeters in the case of spastic paraplagia with high intracranial pressure.

As to confirmation of this work, all I can say is that in each case before operation, permission for an autopsy is obtained; each time we have performed an autopsy the results of an intracranial hemorrhage were found, except in one case where there was no hemorrhage but a very œdamatous brain associated with an enlarged thymus gland; the intracranial condition was not due to hemorrhage. Now, whether decompression would have helped in this case I cannot say, that is, by lessening the pressure of the cerebral œdema.

The case reported by Dr. Robby is very significant of an intracranial hemorrhage. That is, the child had the convulsions immediately after birth and then cleared up; the history of practically all these patients has been that after birth they have had convulsions. If the child lives through them, it seems to improve and is considered a normal child until the seventh, eighth, or ninth month, when the spasticity and the stiffness are gradually observed. That is why so frequently around the seventh, eighth or ninth month you find these conditions, and by an operation at that time you will discover that an old hemorrhage existed.

I want again to emphasize the fact that these operated cases are only selected cases. We are only offering these results for the purpose of demonstrating that these spastic conditions can be caused by hemorrhage at birth, and that the hemorrhage does not cause a primary destruction of brain tissue in any but a few cases, but merely an impairment of function of the cortical cells due to the pressure of the hemorrhage, and that an early operation upon these selected cases will result in an improvement and more normal children.

I wish to express my appreciation of the assistance of Drs. Giles, McHenry, Dunham, Lott and Hunt, who have made this work possible.

TYPES OF CEREBRAL DEFECT IN CHILDREN THAT MAY BE BENEFITED BY OPERATION.*

By HERMAN G. MATZINGER, M.D.,

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It must be stated at the outset that this discussion is not concerned with the various orthopedic operations for the correction of deformities and contractures, which so commonly result from cerebral paralysis in children, and which often do very much good in making it possible for patients to get about, enlarging their field of experiences and generally making life more tolerable.

The intent of this discussion is to determine if possible what type of cases, if any, offer a reasonable hope of cure or sufficient benefit from operations upon the head, to warrant such interference. It is safe to say that there are few conditions which the physician is called upon to treat that are so baffling and disappointing and that are so hopeless as far as the patient is concerned as the various developments which originate in cerebral defect.

For, while it is undoubtedly true that some cases seem to be regressive in so far as the paralysis is concerned, and often show marked improvement in the course of years, it is nevertheless also true that the mental defect not only does not improve, but becomes more conspicuous as time goes on, because of the growing discrepancy between the mental and the physical age of the patient.

The very nature of the underlying causes of these conditions is the secret of their hopelessness.

It is common observation that even in previously normal individuals, any injury to cerebral tissue, even though it does not entail motor disturbances, is regularly followed in course of time by some more or less marked irreparable, often progressive, mental change. Much more so is this the case when the injury occurs very early in life, whether it involves the motor areas or not. The fact is that practically all cases of cerebral defect are feeble minded, irrespective of the degree of their paralysis, and by far the greater number are destined to become as dependant as imbeciles.

Fortunately many of the more seriously afflicted individuals die long before the period of childhood is passed. Of those who remain a large number soon become so helpless and alienated that they are removed from society and often end their days in some institution for the feeble-minded or for epileptics.

Surely, if any salvage can be affected in this field of misfortune, nothing should be said or done to interfere with it or to discourage it.

But there is a growing feeling among those who have to do with cerebral and mental defects, that these disorders are not solely the result of injury, disease or accident, in utero at birth or afterward.

Indeed, careful inquiry into the family history so frequently reveals associated neuropathic inheritance, that there is good reason for at least a strong suspicion that the real underlying cause goes farther back than the personal history of the case. If this be true it would be more profitable to address ourselves to the prevention than to the possible cure of these conditions.

In the Massachusetts school for the feeble-minded, Dr. Walter E. Fernald is at present engaged in careful investigation and study of the antecedents of cases of cerebral defect with spastic paralysis in that institution, and it will not be surprising if he succeeds in collecting some important etiological data, which will aid materially in clearing up this phase of the subject.

Familial types of diplegia are well known and are mentioned by most writers.

It is quite as common to find psychoses and neuroses in the ancestors of these cases, as it is to find alcoholism, syphilis and tuberculosis. A striking parallelism is also suggested in the observation so frequently made on the occurrence of both infantile paralyses and Mongolian idiocy, namely that the first-born or the last of a series of children in one family are most likely to be afflicted.

Now it is well established that mental defect is hereditary, and if the analogy holds, and we may assume to have some grounds for believing that a hereditary transmission of defect is basic in the development of cerebral defect, with a paralytic manifestations, operative procedure looking toward a cure or even permanent improvement of the existing defects of motility or mentality becomes practically useless, or at least purely experimental.

A study of the pathological findings in cases which come to autopsy, rarely reveals more than the terminal phases of the most varied processes, and gives only very meager if any definite information as to the initial causes, lesions or processes. Even when in very early death a hemorrhage is found, it is no criterion that typical cerebral paralysis would have resulted if the process had not been cut short by death.

In fact it can be stated right here, somewhat in corroboration of the above assertion, that there is as yet no proof of any kind, that a clinically unmistakeable case of meningeal hemorrhage ever developed into a diplegia.

In old or terminal cases localized degenerative effects are frequently found, such as faci of softening, cicatrices, cysts and atrophic shrinking and wrinkling of cerebral tissue, without evidences of meningral hemorrhage. Of course cloudings, indurations and adhesions are frequently found with or without other deeper changes. But even these are not necessarily occasioned by hemorrhage, since true meningitis can and does produce similar findings.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

The shrunken atrophic conditions of large and small brain areas which are so often found are more likely to be the result of thrombosis or encephalitis than of meningeal hemorrhage. Not infrequently localized changes are entirely wanting, though the brain as a whole or one hemisphere alone may appear atrophied and sclerotic. But some asymmetry is not at all uncommon in the brains of normal individuals. Then again it is not uncommon to find no microscopical surface changes whatsoever in some cases.

It appears, therefore, that infantile cerebral paralysis is essentially a clinical conception, as Ibrahim put it, in which the clinical symptoms give no reliable indication of the location or nature of the pathological process, and in which the pathological findings at autopsy give no certain indication of the primary cause of the disease which in most cases has operated long before the characteristic clinical picture was fully developed.

The clinical picture then is manifestly produced by the final stages of a diversified group of disease processes, which resemble each other in only one important particular, namely that they attack the brain very early in life, often during fœtal existence.

It is apparent that in order to do any good, operation should be resorted to very early, at a time when as we have seen, there are few if any of the characteristic symptoms of the disease fully enough developed to serve as a guide.

There is then nothing in the pathological anatomy of infantile cerebral paralysis which definitely assists in determining the advisability of operative interference at any stage of the disease.

Difficult and protracted labors may doubtless cause meningeal and perhaps cerebral hemorrhages, which impair the motor centers in such a way that paralyses make their appearance at a very early period after birth. Here the indications for operation are usually definite and imperative and should be followed by good results, especially if the hemorrhage is purely meningeal and the subject can survive an operation.

Premature births usually offer little inducement for undertaking an operation, even though the indications may be pronounced. This is likewise true of all cases with the so-called Little's etiology of difficult labor, asphyxia, etc., and which quite regularly develop into diplegic types of paralysis.

In the majority of infantile cerebral palsies there is no definite history of cranial trauma at birth, and the infant appears to have been quite normal for weeks or months or even years, when suddenly with or without acute symptoms of illness or convulsions, rigidty or paralyses make their appearance.

Finally it must not be forgotten that in almost all cases there are early secondary changes in the connecting tracts between cerebrum and spinal cord. Abnormally developed or atrophied pyramidal tracts cannot be affected or repaired by operations upon the head, and although local conditions in the brain may be relieved by them, the original paralysis and defect remain unchanged.

However, in the progress of the disease it not infrequently happens that the pathological processes in the brain proper produce more or less marked changes in intra-cranial pressure. This adds new symptoms to the case, the intensity of which is determined entirely by the rapidity of the increase of the pressure. In the normal cranial cavity only about 10 per cent of the space is filled with cerebro-spinal fluid. In the abnormal craniums of cerebral defect it may be much less, so that very slight changes may increase the pressure to such a degree that headache, vomiting, dizziness, disordered consciousness and convulsions appear. Even sudden death may occur from paralysis of the respiratory centers. Here a decompression sometimes is quite successful in changing the symptoms and relieving conditions. However, failure is as common, for the reason that relief from pressure is not always obtained by incising the dura of one of the compartments of the cranial cavity. The tentorium and the falx cerebri are as nonelastic as the dura, and symptoms of pressure may continue even after one section is opened.

Lumbar puncture is likely to be quite as useful.

Usually the increase in the pressure is gradual and slow, giving rise to symptoms of irritation, and later to convulsions and epileptiform attacks. About half of the cases of cerebral palsies develop epilepsy.

By far the most reliable and important sign of increased intracranial pressure are changes in the fundus of the eye. These are easily discovered by ophthalmoscopic examination and appear as congested vessels, choked disk and atrophic changes, etc. Disorder of the cranial nerves also develop frequently and early. When these new symptoms appear in a case of infantile cerebral paralysis, operative interference is indicated and should be undertaken, but not with the object of cure but in the hope of prolonging life if such a result is desirable.

THE VISION OF THE SCHOOL CHILD.*

By PARK LEWIS, M.D., F.A.C.S.,
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THE extraordinary conditions which have arisen during the past year in connection with the world war have compelled us to look upon some of our social problems from a new angle.

We have been forced to believe that principles upon which our republic is founded, far from being absolutely established, are still on trial, that democracy is still an experiment, and that its success is wholly dependent upon the character of those who constitute the electorate.

We have been made to realize, too, that the stream of immigrants that has poured into this country during past decades has brought with it vast numbers who, by their most strenuous efforts, have been barely able to support themselves and their numerous progeny, that many of these are of low grade physically, and that others have in their bodies the seeds of disease or of infirmities which they transmit to their offspring. These limitations make for them still harder the struggle for existence, and when under the best circumstances they can only keep their heads above the surface an additional handicap may be the one thing necessary to press them down into the class of the submerged tenth. Under such conditions, from being the most valuable asset which the country possesses, they become a burden and a menace.

The necessity, therefore, which is now being so forcefully emphasized, of internal preparedness, requires that in the child of today, who is tomorrow the responsible citizen, every defect which limits his potentialities and which is corrigible should be remedied. We will thereby raise our whole citizen body to that higher efficiency which real effectiveness demands.

It becomes then a matter simply of self-preservation on the part of the State to protect its own future by using every possible effort to make each child as capable of the higher responsibilities of citizenship as his conditions and circumstances will permit.

This is happily being met in some measure by the medical examinations in our schools.

The full importance of correcting defects of the eyes has not been sufficiently emphasized, nor has this subject been as adequately studied as it deserves. The reason for this is largely owing to the fact that an examination of the eyes, to be of any real value, can be done by those only who are specially trained for this work. Such expert service has not usually been available, and in consequence this important field has been imperfectly and incompletely cultivated. The investigations which has been undertaken, while they have increased in value each year, are still superficial in character, bringing only the more obvious defects into notice, and leaving many of the more vital ones unrecognized and uncorrected.

Because of these facts it is intended, in this brief consideration of the subject, to emphasize the following propositions:

First—That in order we may know how much importance to attach to defects of the eyes we must have exact data as to their incidence, their character, their corrigibility and their influence in retarding the normal progress of a large number of individuals.

Second—In order that we may acquire these facts, standardized methods must be devised, which are applicable to the entire school population.

Third—Measures must be considered for the analysis of the material so gathered that practicable and facile methods may be employed in each case so that it receives suitable attention.

In order that we may realize how inadequate are our present methods it is necessary only to refer to any of the reports of the eye examinations of large numbers of children. In all probability as careful work has been done in Pennsylvania as in any of the states, and where the numbers are large and the conditions relatively similar, the conclusions would be at least approximately alike. In the report of 1914-15, in the fourth class districts, the number of pupils inspected amounted to 469,199. The tabulation of visual defects is as follows:

TABULATION OF DEFECTS.

Vision.

Pupils having defective vision....	83,748	17.8%
Right eye	13,184	
Left eye	14,750	
Both eyes	55,814	
Pupils having other eye affections.	5,512	
Corneal scars	1,717	
Blepharitis	1,400	
Conjunctivitis, simplex...	1,237	
Conjunctivitis, follicularis	7	
Iritis	1	
Trachoma	4	
Strabismus	1,091	
Astigmatism (special tests not made)	55	

Now this is exceedingly important as showing obvious and visible conditions, and even with these necessarily superficial tests it will be noticed that 83,784 were found to have defective eyes, but it must be borne in mind that those conditions which are most provocative of serious reflexes, which more thoroughly incapacitate the child for continuous work and which are apt to produce headaches and nervous disorders, are not those which are necessarily associated with defective sight. These are the hyperopias and the hyperopic astigmias in which, except in the higher degrees, perfectly normal vision may be obtained, but only at the expense of such eye strain as to seriously disable the child for the present and prejudice his condition for the future. Such special tests were not systematically made. None of these examinations bring to the notice of the examiner the presence of many vitally important conditions, nor would there be consequently any measures taken for their correction. All that is hoped for is to deal with the cruder and more obvious defects which are not by any means those of most serious concern.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 16, 1916.

It is indeed important that defective sight be improved when it is possible that this can be done, because it is through the sense of sight that we are brought most directly in touch with the outer world. But one with exceedingly imperfect sight, or even the blind if otherwise normal, may be trained to a high degree of intellectual power. It is through the eyes that we have brought to us the consciousness of the world in which we live, and it is difficult for those who see imperfectly to get clear mental conceptions of their surroundings. When to this imperfect sight is added the strain of the struggle to see through eyes which are used only with constant effort the concentration essential to continuous thought is almost impossible to obtain. The attention is diverted and distracted by the local discomfort, just as it would be difficult, if not impossible, to memorize a poem or to solve a problem if one were walking with peas in one's shoes.

It therefore becomes necessary very clearly to discriminate between the various conditions that are classified in bulk as "defects of the eyes." And equally important is it to understand in what way and to what degree these defects may prove embarrasing to the child's work. Until such discriminations are made the records will continue to show, as they have in the City of New York, that vast numbers reported as having defective sight remain uncorrected and are reported as unfinished cases. In many instances this is inevitable. If, for example, the defect in sight is dependent upon scars and clouds in the cornea, due to early inflammatory conditions, to adhesions of the iris with occlusions of the pupil, to cataracts and optic nerve atrophies, congenital or otherwise, they must all be included under the head of incorrigible defects, and if both eyes are involved, if there is no active disease, and if no treatment is to be instituted the record should immediately be considered as finished so far as the inquiry is concerned upon the report of the condition.

Then another phase of the work immediately presents itself which is no less important, but which deals with the pedagogic side, and that is the disposition that shall be made with such pupils in the classification and arrangement of the school. These cannot see adequately to maintain their position in the classes with those whose eyes are good, therefore some other method must be devised by which they may be relegated to special classes or other provision made for their instruction.

If, on the other hand, the defect is dependent upon myopia the determination must at once be made whether or not it is of a progressive nature, and whether with suitable glasses the child may, with safety, continue in his school work. If it should prove to be progressive, as should be determined by periodic tests, the myope must also be relieved from the necessity of continuous book study, and special arrangement should be made for instruction in which his eyes are not called upon for continuous near work.

This has been found entirely practicable in some of the London schools, and its necessity is constantly being emphasized in our schools here.

If, on the other hand, the eyes are defective because of the presence of a corrigible condition which, uncorrected gives rise, when the eyes are used, to pain, or irritation, or some reflex, then the refraction should be determined under more definite and exact conditions, the results recorded, and the conditions which follow carefully observed. This requires a degree of co-operation between the school examiners and the school authorities, which, when obtained, will not only add to the working efficiency of the school child, but will also increase the value of the medical inspection. The methods of school examinations at present employed are a long step toward the attainment of this end, but they do not as yet succeed in giving us any complete or even adequate knowledge of the exact condition of the eyes of the school child or of his ability to use them in the work which is exacted of him. To secure such data the co-operation of the teachers and of the superintendents of schools, as recommended by Dr. Allport, should be obtained where individual examinations are not periodically made by medical examiners. And even where they are, the preliminary tests, which require no medical knowledge whatever, could be made and recorded as a part of the data of the individual school life. The teacher, with not more than fifty children in her class, has opportunities for observation which are superior to those of any outside investigator who comes temporarily into the examining room. By means of standard tests, in which answers are required to stated questions, facts can be secured in regard to the child's sight and the use of his eyes, which would prove to be of great value in carrying out his instruction. It should be a part only of course of the general physical observation of the child, and so far as the eyes are concerned should be supplemented by inquiries to be answered by the medical examiner as to whether the condition, if abnormal was corrigible, and if corrigible whether it had been relieved, and if not it should not be left in an unfinished condition until the reasons why it has been uncorrected or unsatisfactorily corrected had been determined.

The necessity for this completeness of record lies in the fact that when defects have been found and the parents of the child have been advised officially to have them corrected, this is by no means always satisfactorily done. Neither are the methods employed in the correction of eye defects always equally well done by those professing to treat them. When the work is done for the poor the child is usually referred either to the public dispensary or to an optician. The refractive work done in public dispensaries is too frequently done in a hurried and careless way and usually by the junior assistants. The testing for glasses, while of the highest importance, has not for the young doctor the interest that is attached to a surgical operation or some unusual pathological condition. To refract accurately requires not only a high degree of skill, but much patience and often considerable tact. It cannot be done accurately in haste and unless it is correctly done it is usually worse than useless.

If, on the other hand, the child goes to an optician the work is even more slightingly done, and when minimum charges are made there is not the financial inducement to make a careful adjustment of the frames even when a prescription is given for the glasses required. The small amount paid for the lenses by those who are poor is often a burden, and when the school authorities by repeated urging succeed in having the sacrifice met by which the spectacles are secured it is not only a disappointment in that they fail, but being uncomfortable the child refuses to wear them and the whole purpose of the effort which has been made will prove to be fruitless.

Since, then, the state concerns itself with the welfare of the child to such a degree as to insist upon the child being examined and getting spectacles it should go still farther to see that the examinations are made under right conditions and that suitable and well fitting glasses are provided at a minimum cost. When the parents are too poor to pay for them they should be supplied by the school authorities gratuitously, as books are provided for study. This cannot be done when the school child is sent anywhere where the examinations are made in a perfunctory way.

Through the efforts which have been made by the State Medical Inspector of Schools, Dr. William A. Howe, a large number of careful and dependable ophthalmologists have offered their services for the gratuitous examination, at specified times and places, of such necessitous cases as may be referred to them. This is a most excellent beginning and will reach a large number who would otherwise be unable to secure the needed help, and most physicians, I am sure, will be glad to give certain specified hours for the treatment of the poor. But the problem is too big to be met permanently in this way. In addition to this there should be in the cities, where it is possible to secure their services, a sufficient number of ophthalmologists on the Board of Health to make the necessary refractive examinations for those unable to pay. These should be done in the schools at the time the children are there and with such co-operation on the part of the teachers as will enable them to understand why the glasses are prescribed, to see that they are worn, and to note the results.

The importance of the municipality establishing its own clinic for refracting its poor pupils and supplying them with glasses was emphasized in an exceedingly valuable paper read at the Fourth International Congress on School Hygiene, by Dr. Louis C. Wessels, in which he pointed out that from an economic standpoint it was a saving of money to see that the children in the public schools had such eye equipment as would enable them adequately to do the work that is required of them. Such a clinic has been established at the City Hall in Philadelphia.

It is hardly within the province of this paper to speak of the necessity of obtaining right condition under which the child must work during the hours which he is in school, except to say that this should no longer be left to the haphazard of circumstance. The construction of the school building, the amount of window space, the wall coloring, the absence of glare, the position of the desks, and the length of time which the growing child should devote to his studies have all been worked out with a sufficient degree of accuracy to warrant their being standardized and such measures should be adopted as would forbid the acceptance of plans for any school building in which these conditions were not met.

In order that the co-operation of the home may be secured the most practical plan seems to be the use of the school building as a civic center.

Illustrated lectures, giving in simple language the principles of sanitation and hygiene should include the proper use of the eyes.

In the carrying out of this purpose illustrative lantern slides will now be loaned either by the Committee on the Conservation of Vision of the American Medical Association or the New York Committee for the Prevention of Blindness, and some capable man can always be secured by whom these talks will be given. The parents of the children can then be actually shown what eye strain means, how seriously it affects the progress of the child, how much its correction may do toward increasing his future efficiency, and when the existing defects are pointed out to them they will gladly co-operate in securing the necessary help.

Another reason why permanent records should be made of all school children's eyes is found in the Workmen's Compensation Act which has recently been put upon the statutes of the state. It is constantly becoming more evident that with the assumption of responsibility on the part of the employer for injuries received by the employee in the performance of his duties, that there must be an assurance of the existence of a normal physical condition on the part of the workman who is thus protected, but if there is an abnormal condition present this must be recognized and known in order that the extent of the injury may be ascertained.

It has repeatedly come to the notice of many of us to whom cases of this character have been referred during the past year, that claims have been made for loss of sight said to be due to traumatism, but which on examination were either shown to be necessarily pre-existent to the alleged hurt, or of such a character as to make it exceedingly doubtful that the loss of sight was dependent upon this particular injury.

Such cases as have come under my own notice are, for example, a hitherto unnoticed amblyopia in which the sight was markedly reduced below normal, but to which attention had not previously been called, and only after the injury was the fact determined that the sight was defective.

In another instance a cataract, probably congenital, was present, but the presence of which was unknown until the eye was hurt.

Many obvious conditions, such as corneal scars, dating back to childhood, or other obstructions to normal sight, lead the claimant sometimes with wilfull intent to deceive, but more frequently because he was himself unable to determine how much of his loss of sight was due to the injury, to make unwarranted claims for compensation. All of this could be avoided if permanent records, which were available when necessary, were made periodically of the eyes of the school child. If, then, it were found that in the right eye or in the left of any individual case the record showed that vision was but 20/200 when it should have been 20/20, and if after an injury twenty years later it were still found to be 20/200, it would immediately eliminate the responsibility of the employer.

If the examination for color sense shows the presence of partial or complete color blindness, a knowledge of that fact would be of much value to the young man in the choice of the work which he is to pursue, by making evident to him that he ought, under no circumstances, try to secure a position in either the railroad or marine service or anywhere in which a discrimination of colors or colored lights would be necessary. It would save him the disappointment of trying to do the impossible and save others from needless danger.

To summarize, then, what I have endeavored to say, let me urge—first, that the program of preparedness which is now so deeply stirring the people of our country, and the necessity for which will be just as imperative when the war shall have ended as it is now, requires as a prerequisite that careful physical examinations, including those of the eyes, be a part of the routine record of every child, that the data so obtained be permanently preserved and be readily available when they are required for purposes of equity or for other reason.

Second—While the responsibility for securing and maintaining these records rests primarily with the Department of Public Education, the initiative must come from the medical profession, because of its greater familiarity with its necessity and importance. Such records, if made in accordance with established standards, would serve, not only as a basis for the immediate difficulties limiting the possibilities of the child, but would constitute an essential feature in our preparedness program in giving us important and necessary data concerning every individual in the State.

THE THERAPEUTIC IMPORTANCE OF A SCIENTIFICALLY CONDUCTED HEALTH RESORT.*

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NEW YORK CITY.

THE health resort, as a therapeutic asset, has never been taken seriously in this country, and therefore it has not, as a rule, been thought worth while to apply the scientific method to its development.

Like psychotherapeutics it was discovered by the public, but unlike this, it has not been quite absolutely and frankly adopted into the profession, and its use is generally first suggested by the patient, and accepted with more or less reluctance by the doctor.

Many of us remember the years when we looked to the old world for teaching in the higher walks of medicine. Some were fortunate enough to make student pilgrimages to the centers of medical learning in France, England and Germany, and all depended to a large extent upon the literature of foreign lands for keeping abreast of the times.

But all of this is changed. We have gradually developed institutions of advanced learning here, and have created a body of traditions so sane and so stable, that as thorough a medical education can be obtained in America as in any country in the world.

But there is one department of medicine and of medical teaching to which we have not yet seriously turned our attention, and in which we are distinctly inferior to the older countries, and for an understanding of which we must still turn to them.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 16, 1916.

I refer to that complex of agencies comprising hydrotherapeutics, the use of natural mineral waters, mechanical manipulation, environment and diet. This group has been comparatively little studied in this country, though under the influence of recent intensive studies in chemistry, scientific dieting in certain groups of disorders has been carried to a very high degree of efficiency.

The world's experience of considerably more than a century at Carlsbad, Vichy, Aix, Nauheim, Kissingen and a host of other health resorts, would seem to make it a waste of time to hold a formal debate upon the question whether there is or can be any value in such so-called cures.

The innumerable health resorts of Europe, thronged every season with critical persons who are sent there by their physicians, the many thousands of Americans who visit these cures, spend there from six to ten million dollars yearly, is abundant testimony that benefit may be thus obtained. Moreover, the medical profession of the old world believes in such cures, and has believed in them for centuries, and the science and practice of these forms of treatment are fully taught there as a part of the medical curriculum.

It has often happened that a remedy has been in successful use for many years before the mode of its action or the reason for its success has become known.

Peruvian bark cured many generations of malarial patients before the discovery of the organism of the disease, and the demonstration of the remarkable power of quinine, even in high dilution, to destroy such forms of life. Digitalis was used by a layman for the relief of dropsy long before Withering undertook his epoch-making study of the plant, and even yet our knowledge of its mode of action is none too complete.

Recent advances in our knowledge and understanding of the involuntary nervous system, of the subtler phases of the circulation, and of the bearing of the mental upon the other body processes, all help to explain why it is that health resorts are valuable therapeutic assets, while knowledge of the chemistry of the body makes it possible to use them with more precision and success.

As we penetrate more and more deeply into the mysteries of the body and the mind of man, we become more and more willing to admit the influence of one upon the other, and the influence of such factors as climate, temperature, environment and so forth upon both. The comparatively new science of anthropogeography emphasizes the vast power of environment in changing man's mental and physical characteristics.

Environment is coming to take a more and more prominent place in the treatment of most diseases, and in the carrying out of resort cures, environment is of vital importance.

In tuberculosis, it is universally recognized that climate is of most service when it is aided by rest, good food and the judicious carrying out of a multitude of minor measures under the guidance of an expert of the highest type, measures, no single one of which may itself appear to be essential, but which, when wisely correlated, determine the difference between success and failure—life and death. And we send our patients to certain places for fresh air treatment, not because the air there is fresher than elsewhere but because this method, seemingly so simple, is only there carried out according to the most modern scientific principles.

The value of the cure in a health resort does not reside in any one specific feature, but is the result of a combination of circumstances. The change of scene, climate, absence from customary cares, exercise, fresh air, diet, all combine with the specific waters or baths to produce a given result; but this after all is equally the case in the treatment of any serious disorder. In the management of typhoid fever a successful issue is not won by the diet alone, or the rest and quiet, or the nursing or the baths, but by a combination of all of these, wisely carried out, varied from time to time, ordered by science, and guided by intelligence.

This is the age of science, the age of efficiency, an age in which the old-fashioned haphazard ways of conducting the business of the world are rapidly giving place to methods of precision. All large manufactories today find that laboratories and highly educated laboratory workers are essential to their success, and more and more throughout the whole domain of human effort are science and efficiency coming to be synonymous.

All through the earlier ages of medicine empiricism ruled, and through conscientious and painstaking empiricism, some admirable but limited results were had; but scientific medicine had not come into existence. Today, the care of the sick is no exception to the rule and the practice of medicine is dominated by the laboratory and is more and more striving to make use of every aid that science offers.

Through the efforts of many generations of practitioners, investigators and teachers of medicine, the world's attitude towards disease has become completely changed. We no longer regard it as a punishment sent from some higher power, or as a necessary and inevitable part of life, but we see in it only an evidence of man's carelessness or man's ignorance.

Edward Gibbon, the historian, in his charming autobiography, tells that his father named each one of five successive sons Edward, hoping that a least one would come to maturity and bear an honored family name, and realizing that but few children then lived to grow up. All but himself died in infancy or childhood, thus justifying the parent's precaution. Queen Anne was unable to leave an heir to the English throne because her seventeen or eighteen children had all died in early life.

Intelligent scientific effort to check this inordinante mortality among children has resulted in so complete a change, that today an experience like that of Gibbon or the English queen would fairly be a matter for official inquiry and perhaps punishment. This result has come through scientific study and classification, and rational treatment based upon these. The doubling of the expectation of life has come for the most part through a lessening of infant mortality, for upon this special problem the efforts of sanitarians have been focussed.

The next task for the profession to take up is the lessening of the death and disability rate in middle life, and this is a problem upon which up to the present, insufficient and no very effective work has been done. Dyspepsia, chronic rheumatism and gout in their various forms, functional disorders of the liver, chronic Bright's disease, chronic heart disease, premature hardening of the arteries with its varied and serious consequences, too high blood pressure, the many chronic disturbances of the intestinal tract; the wide occurrence of these and the pathetic striving of the people for relief are all testified to by the advertisements of so-called remedies for one or more of them, which cover the boardings and the street cars, and by the vast fortunes that are made through the vending of these sadly inefficient medicines.

We are sometimes tempted to assume that these maladies are the result of what we call the hypertension of modern life, but there is reason to believe that they existed even in the earliest times. Celsus, a learned physician, writing in the first century says, "All men of learning and almost all dwellers in large cities suffer with their stomachs"—thus showing that 2,000 years ago, dyspepsia occupied the same place in life as today.

Now it is in relation to this group of disorders of middle life that such resorts as Saratoga find their greatest usefulness, not only after the trouble has become pronounced, but especially in the early stages when the disorders of function have first begun to manifest themselves, and when organic disease has not yet appeared.

It is not my purpose to enter into a discussion of the technical details of treatment at this or other spas, and the diseases which are benefited there, and the modes of using the waters, for this ground has already been covered in a brilliant paper by Dr. W. Gilman Thompson, presented before the New York Academy of Medicine last winter, but I should like rather to point out why every cure should be upon a scientific basis, and should be carried out with exactness.

The treatment of disease is a very different thing today from what it was even three or four decades ago. Then, the chief duty of the physician, assuming that he had made a diagnosis, was to write a prescription. Today we see in each case of illness a struggle between a human body striving to maintain itself against some enemy; a struggle between the body and some sinister agency lying outside it.

The outside agency for evil may be a material thing, either a living parasite, or a foreign body, such as poisonous food in the stomach or intestines, or a bullet or piece of shrapnel somewhere in the frame, but in every case the human body itself employs all its complex mechanism in the effort to rid itself of the intruder, or to adjust itself to its presence, and it is this struggle that constitutes disease.

In other and more obscure cases, the intruder is intangible, it is a force, but the results are the same; organic disease resulting from too much work or wrong work exacted of some part of the body. It may be general overwork or the overwork of one organ, through improper food or improper labor, physical or mental, especially often overworry, too much food or too little, or food of improper kind, and so we finally have the large group which makes up an important part of the diseases of later life and which are especially benefited by such treatment as that which can be given at Saratoga, and at other similar resorts.

The waters of Saratoga as a gift of Providence to mankind, leave nothing to be desired. The aerated waters are the equal of any in the world for the so-called Nauheim treatment for the chronic diseases of the heart which are so common nowadays. But the Nauheim cure to be effective, requires a high degree of special knowledge of the diseases of the heart, and it comprises not only the use of the water, but a wisely arranged diet, carefully adjusted periods of rest and exercise, and skillfully carried out manual manipulation, and these last are an essential part of the cure. The various chronic conditions for which the internal administration of the waters may be made most helpful absolutely demand for success, a carefully regulated life and especially a rigidly imposed diet, rigid, not necessarily in its austerity, but in the degree to which, when once prescribed, it is adhered to, scientific in the precision with which it is compounded, having in view the furthering of the cure, helping nature in her effort to return the body to the normal.

One single concrete example of how a modern scientific outlook is needed for the success of such a place as this: In certain cases of kidney and heart disease there is an inability for the kidneys to excrete the normal quantity of sodium chloride, or common salt, a condition spoken of as chloride retention, and resulting in dropsy. Under these circumstances a diet free from salt, or poor in salt is to be ordered. In such a case, the free drinking of such a water as Hathorn, No. 2, very rich in salt, would tend to produce serious dropsy. The other constituents of this water would probably be of benefit to the patient.

Chloride retention can be recognized only through the most modern dietetic and laboratory methods.

Recent advances in medicine are beginning to disclose the causes of certain hitherto baffling chronic maladies, such as rheumatism, and this makes it even more necessary that health resorts to which these patients come, should be equipped with all the modern appliances for the most modern study and diagnosis of disease.

Every farmer knows that harm as well as good can be done by the most beneficent agents. If too much nitrogen is given to fruit trees, only wood and leaves are obtained, and no fruit. Either too much or too little lime will favor undesired growth in pastures. A too abundant or an improperly compounded ration will diminish the milk of the herd and cut down the egg output of the hennery.

Mineral waters and hydrotherapeutics too are two-edged swords, capable of both good and harm. To one who has visited Nauheim and sat for a morning in the office of Dr. Groedel and his two sons, it soon is made clear that without the high scientific attainments of the elder Schott, Hemerman, Groedel, and others, Nauheim would not have reached its pre-eminence in the treatment of heart disease.

The scientific clinical work done by the Groedels was unexcelled anywhere. No method of examination, however elaborate and costly was omitted if it promised to throw light upon the problem at hand, and the combination of complete and thorough examination, careful planning of treatment, and conscientious observation of its course, presented a picture of clinical science rarely met with. The breaking up of this group of workers through the death of at least one of them in the war is a calamity.

The aerated waters of Saratoga are at least equal in value to those of Nauheim, and if they can be administered with equal precision, this place will prove a boon to countless sufferers from organic heart disease.

No Nauheim bath should under any circumstances be administered without a prescription from a physician of tested qualification to order it.

It is not necessary that health resorts should be made places of punishment. But care should be used that the health features be not subordinated to those of simple pleasure, and that the energies and funds available be not diverted to these ends. It has been proved that a hotel can be made attractive to the well, and yet offer every facility for the care of the sick. But it requires study, intelligence and interest to bring this about, and it would require also, willingness to learn, as we doctors learn, from those who in other countries have achieved better results than our own.

The value of spas and spa treatment in general is no longer a matter of discussion and argument in Europe, where the question was settled many years ago through practical experience, and where subsequent discoveries in chemistry and physiology have confirmed the conclusions from practice. To learn how spas may be conducted on a scientific basis and be made effective in the treatment of disease, and at the same time be made remunerative financially, we must turn to the old world for guidance. There they have succeeded in building up resorts which cure the sick and at the same time entertain, amuse and recuperate the well, for we must remember that with every invalid visiting such a spot, there are generally several others who do not come for treatment, but whose comfort and pleasure must be considered.

Perhaps the clearest and briefest way to indicate what the medical profession means by "a scientifically conducted cure," will be to describe in some detail the life and cure at some one of the best known European spas, and for this I will choose one that is mild, rather than strenuous and whose climate, environment and regimen, and field of usefulness suggest much similarity to Saratoga.

Vichy is one of the oldest spas in Europe. It is visited annually by many thousands of people and the benefits received from it are very great. The springs are the property of the state, and are leased to a corporation, the "Societe Fermiere," the shares of which are of much value and whose profits are large. The methods of administration of the trust are subject to government supervision. The first-class bathing pavilion, not long built, is a model of its kind and every form of hydro, mechanico and electrotherapeutics is well given by skilled experts. In addition there is a second and third-class bath house where the same treatment is given but at much less expense, and which is thronged with persons in moderate circumstances.

There are many physicians resident in the town, who have no official relation to the establishment. These men are experts in hydrotherapeutics and especially in the use of the local waters. They spend the summer there and in winter many of them occupy positions in medical schools and laboratories throughout France, where they engage in research and teaching.

The numerous hotels, as is the case in most of the spas of Europe, are as nearly perfect as it is possible for them to be made, and no mania for bigness of structure or bigness of profits has been allowed to make efficiency and therapeutic success a secondary consideration.

The person who comes for a cure is examined by his physician, who then not only writes a prescription for his baths, waters, and other treatment, but fills out a blank diet form which is found in every bedroom, and which is then sent to the kitchen. This diet sheet is kept on file there, and within its limitations the headwaiter and chef arrange a menu for each of the meals of that patient, using consummate skill in the composition and variety of the list and in the preparation of the various dishes, so that at the end of a cure of three or four weeks, he hardly realizes that he has been on a diet, and so is spared the most tedious and exasperating feature of diets in general, the attempt at each meal, to choose from the menu, only articles which conform to the prescribed list. There is also no opportunity for unwisely yielding to temptation.

This, I believe, is the highest existing development of spa management, and it makes not only for the maximum result from the treatment but the maximum comfort and enjoyment of the patient who is taking the treatment. It requires only intelligence and interest and the willingness to take pains, on the part of the doctor and of the hotel management.

I believe that a hotel well run on this principle here would be a financial success from the outset, and moreover, of the utmost value in the development of the health resorts of America. I believe, too, that the hotel men of this country are in error in assuming that every American when he finds himself in a hotel demands that he be allowed to take his breakfast, luncheon and dinner at any moment in the twenty-four hours when the spirit moves him, and that at this moment he shall be served practically instantaneously with any dish he wishes to have.

Saratoga and other resorts may attain some measure, even a considerable measure of popular success through offering attractive entertainment and pleasantly laxative waters, but such success must be temporary and dependent upon the whims of the people and subject to the possibility that some other resort may offer greater attractions.

The full fruition of the wonderful and unrivaled gifts that nature has bestowed upon this valley will never be attained until this cure has the complete confidence of the medical profession of the country.

Our profession is not narrow, it is not biased. It is confronted constantly with problems of extraordinary complexity and difficulty, and grasps with eagerness at any reasonable aid that is honestly offered and which promises to help it in its great task, and as soon as its confidence has been once gained, Saratoga, and the other worthy health resorts of our country, will take their places high among the spas of the world, places to which they are clearly entitled by the design of nature.

SCOPE OF PRACTICABLE EXAMINATION IN ROUTINE SCHOOL MEDICAL INSPECTION.*

With a Consideration of Standard Record Cards.

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At this particular time, when the possibilities of social uplift and race betterment loom large in the new field of preventive medicine—when the science, medical sociology, is being gloriously born and the public is beginning to realize the value of "keeping well" rather than "getting well," the institution of systems of school medical inspection throughout the country is one of the most gratifying "signs of the times." Mandatory legislation in the increasing number of states enacting such laws has been designed to bring the smaller cities, villages and rural districts, a measure of benefits of systematic school health worth previously enjoyed only by the larger centers.

The Working Unit.

The first and most essential thing to determine in a given district is the size of the working staff. The working unit in medical inspection, as recognized by the most practical school hygienists consists of one doctor and two nurses for each 3,000 children.

Any district with 3,000 school children should employ its physician for "full time." Smaller districts might merge their school health interests to approximate a community of 30,000, and join in employing a full-time chief inspector. As this probably cannot be realized generally in the very near future, part-time physicians and full-time nurses must be accepted.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 16, 1916.

An examination of the character indicated in the *health certificate* referred to in the New York State law is practicable only in a physician's office, and cannot be properly accomplished in less than half an hour. This is the examination that the child undergoes whose parents desire their family physician to make the examination. No space is provided upon the health certificate for a record of tests of eyes and ears, for the reason that the law directs that these tests must be made annually under the direction of the school medical inspector in the case of *all* children.

In most school buildings the only examination room available is the vacant kindergarten room in the afternoon, or the principal's office. Under such conditions the removal of the clothing is not practicable. Besides, a competent examiner will be able to ascertain all facts required for purposes of school medical inspection without removing any clothing except in a relatively small number of cases that may be seen in extra-urban districts on Saturdays or in the late afternoons or evenings at the office for a more detailed examination, at which the parent, or surely the nurse, should be present. This group includes the cases of anemic and poorly nourished children; those with cervical nodes that show a tendency to break down or become confluent; those with chronic cough or digestive disturbances; those that are extremely nervous or those that suffer from dizziness, shortness of breath, etc.

There is no grave reason why a standard examination, such as the one later outlined, should not be accomplished in a rural school room in case a more suitable room is not available.

In indicating the scope of such an examination it is impossible to divorce ourselves from a brief consideration of:

THE STANDARDIZATION OF SCHOOL MEDICAL INSPECTION RECORDS.

Some difference of opinion exists amongst school hygienists upon this subject. The discussion roughly narrows down to one of two possibilities:

1. A suggested standard card for record of school medical inspector's physical examination of the child, plus supplementary cards for various special records, reports, etc., or
2. Suggested data essential to scientific conduct of the work, leaving the actual form of the card to the local executives.

The work itself is organized in the various states and in different cities of the same state along different lines with varying conceptions of the scope of the work. Many of these variations are somewhat fundamental—and are due to difference in the legislation under which the system is established, the agency entrusted with the administration, or the character of the particular system and working force. Many of these differences doubtless will exist for several years and will be adjusted only as educational hygiene comes generally to be appreciated as a science. However, it seems that standard cards might advantageously be suggested, which cards might at least indicate minimum requirements.

The following cards at least would seem absolutely essential to the proper conduct of school medical inspection in any district:

PHYSICAL RECORD CARD.

This card should not be confused with the card for a record of the physical child where a system of physical training exists in the schools. Where such system exists certain anthropometric data are of importance which serve no practical purpose on the physical record card upon which the result of a medical inspector's routine examination of the child is to be entered. Upon this first card of the medical inspector's system of records there should be space for name, date of birth, address, grade, school, father's name, nationality and occupation and date of vaccination of child, and for an abbreviated or code record of the physical condition of the child under the following heads:

Eyes (Right and left).
  Glasses? Date obtained.
  Pathologic conditions (this covering squint, blepharitis, fatigue signs, conjunctivitis, etc.)
Tonsils.
  Enlarged?
  Cryptic?
  Frequent sore throat?
Nose.
  Nasal obstruction?
  Nasal catarrh?
  Chronic pharyngitis?
Teeth.
  Decayed?
  Irregular?
Ears.
  Defective hearing?
  Discharge?
  Other conditions?
Skin.
Orthopedic.
Nervous.
Cervical Nodes.
  Enlarged?
  Confluent?
Nutrition.
  Excellent? Good?
  Requiring supervision? Requiring medical treatment?

Mental Status.
Bright?
Normal?
Dull?
Feebleminded?

Incurable defects.
Vaccination Scar.
Illness since last examination.
Remarks.
Heart.
Lungs.

The last two headings may contain no entries in some systems for the reason that the working force may not be sufficient to assure careful examination of the chest. Chest examinations as conducted in some systems are a waste of valuable time. Under these headings there always should be recorded lesions that may be revealed in a more complete examination of the group of poorly nourished, flat-chested, nervous children, and those with enlarged cervical glands that tend to undergo softening. This group of children should receive an intensive examination even in systems where the more superficial examination is the routine procedure. In this way the great majority with cardiac or pulmonary disease will be discovered even in the absence of a large enough working force to handle the more complete examination as a routine procedure.

The physical record card should contain space for the above suggested record for every year of the child's school life, and suitable space for a record of when parents were notified of defects and when results were obtained in the shape of "cure," "operation," "glasses," "treatment," "dentist," etc. This record card should be kept at the school along with the child's school record where it may be consulted with advantage by the principal and teacher.

The examination indicated on such a record card is the most practicable for school medical inspection, since it may be accomplished (excepting in the case of selected children, requiring chest examination) without the removal of any clothing and in a comparatively short time—from six to ten minutes, according to the experience of the examiner, the age of the child, and whether or not there is furnished clerical assistance in the recording of the findings. Space should be provided for a record of results of the most important activity of the school nurse, namely—"follow up" work. Incidentally we should realize that the school nurse stands as the most effective instrument for success in the work either in urban or rural systems. It is poor economy to pay doctors to examine school children and tabulate defects if there is no agency through which correction of these defects may be secured.

Parental Notification Card.

Where a small number of pupils, good social conditions or economy dictated, this card might be used to notify of all conditions found, by simply writing the statement into the blank space. Where there are many notifications to be sent out, however, and where a wide variety of conditions must be dealt with daily, supplementary notification cards are essential. This set may be added to at the discretion of the inspector, so that every case of defect or disease will receive a card, carrying not only the notification of the existence of defect but in addition a definite attempt at the education of the parent upon the subject and a direct appeal for correction.

Miscellaneous Case Card.

This card is a simple and continuous record of so-called "miscellaneous" cases, seen at the time of daily visitation of the schools by nurse or inspector, and disposed of at once in accordance with their immediate need; it would bear the record of the cases of sore-throat, acute conjunctivitis, skin diseases, superficial wounds, pediculosis, discharging ears, urgent cases of any of the common physical defects and cases of the acute communicable diseases.

Report of Sanitary Survey.

Where the activities of the medical inspector are properly balanced, his time is not consumed wholly with the examination of children; he gives due attention to the physical conditions under which these children work and live for five hours a day. A card that provides for a record of a sanitary survey under at least the following heads is therefore desirable:

Ventilation.
Air space.
Lighting.
Heating.
Toilet facilities.
Condition of toilets.
Drainage.
Drinking water (individual cups or fountain).
Rest room for teachers.
Playground facilities.
Aesthetic features.

Medical Inspector's Report Blank.

With the proper working force and the complete examination of the children and the recording of this data on cards similar to the first one here indicated, the medical inspector should have little trouble in reporting upon the following points:

Number of pupils registered.
Number of schools.
Number of school visits.
Number of hours actually spent examining children.
Number of children examined.

Number of children having:
  Defective vision.
  Other eye conditions.
  Pathologic tonsils.
  Defective hearing.
  Nasal obstruction.
  Poor nutrition.
  Enlarged cervical nodes.
  Decayed teeth.
  Orthopedic defects.
  Nervous conditions.
  Mental deficiency.
  Skin diseases.
  Pulmonary disease.
  Cardiac disease.
  Other conditions.
  Contagious disease since last report (classify).
Number of teachers examined.
Number of teachers with serious defect or disease.
Number of janitors examined.
Number of janitors with serious defect or disease.
Number of sanitary inspections made.
Number of defective children that have received treatment.

This report should be a monthly report from which a yearly summary may readily be made.

School Nurse's Report.

This should include the following:
Number of school visits.
Number of home visits.
  Old.
  New.
Number of miscellaneous cases seen at morning visitation. (These may be classified if desired.)
Number of new cases pediculosis.
Number cases pediculosis pending.
  Number cured.
  Number improved.
Number of class-room inspections.
Number of cases taken to dispensaries.
Number of treatments at school.
Number of special investigations.

This should be a weekly report filed in the office of the executive in charge.

Dental Record Cards.

Where free dental service is provided in a district a definite set of record cards is absolutely essential to the proper dispensing of such free service. The Albany set could be used in this line of work in a field of any size.

Physical Training Card.

A card for this physical record of a pupil will be needed only where a system of physical training has been established. This card lends itself more readily to standardization, since the data will be largely anthropometric in type. The standardization of such a card might well invite the combined efforts of physical educator and child hygienist.

Open Air School Record.

Where open air treatment of poorly nourished children is provided special cards will be required. The Albany cards provide for a sociological record, a personal term record, a physical examination and a weight chart.

Special Class Records.

If special classes for backward and feebleminded children are instituted, special cards and blanks will be necessary to scientific work, since this group of children in particular should receive intensive examination and study.

In the majority of places today the working unit is too small properly to give all the children adequate care. The proper standardizing of working staff and scope of work should perhaps be our first thought. It is of little practical good to require an examination, involving a chest examination, when one part-time man is assigned to four or five thousand children. Such an examination if attempted with this number of children can be but a waste of time. Personally, I have seen such examinations conducted in cities that make a great feature of the fact that children are stripped to the waist for their examination; and I have seen such examination completed with four movements of the stethoscope and in less than a minute. Where conditions are such that a part-time man has more than a thousand children a chest examination should not be considered except in the case of the relatively few anemic, flat chested, nervous children and those with suspicious lymph nodes; or those that bring to us evident signs and symptoms of organic heart disease.

However, the standard card, requiring an examination of such scope that the limitations of the inspector in reference to the number of children that he can handle, definitely appear, may point the way to an adequate working unit and may thus help to solve our first problem. A suggested card would thus have a definite educational value.

The following facts, based on the actual experience of a trained examiner of school children, may be suggestive:

Working one-half day (two hours), five days weekly for thirty-six weeks, an inspector may examine approximately one thousand children, if a nurse is present to assist in the preparation and handling of the cases and in the recording of the findings. Working one hour a day for the school year, he will, under the same conditions, examine approximately four hundred and fifty children. In the same time, the more superficial type of examination (not involving routine chest examination) can be given to three times as many children; and if the nurse is trained to give the Snellen card test, then the doctor can examine four or five times as many, especially after he has acquired mechanical skill in the handling of school children.

Certain standards should be suggested to govern the reporting of defects—as, for example, an enlarged tonsil, smooth and of good color with no history of sore throat, obviously does not require notification; a smaller tonsil, pitted or cryptic, and with a history of frequent sore throat or tonsilitis, is certainly pathologic. Or, a child may read 20/30 with both eyes and yet may show marked signs of eye strain and should receive the attention of an occulist, while a case properly tested and reading 20/40 or worse with both eyes, or worse than 20/40 with one eye, routinely should receive a notification, unless recent glasses from an occulist's prescription are being worn, or, unless corneal opacities account for the lowered visual acuity.

It is thus seen that good fundamental training in the specialties is desirable on the part of the medical inspector if he is to handle his cases wisely. An analysis of the reports of examinations of several thousand school children by one hundred and sixty-seven different family physicians shows a wide range in standards of judgment as to the existence of the various physical defects. Therefore, where school inspection is carried on by general practitioners or doctors without special training in school health work and in handling children, a set of regulations should be formulated for their guidance that should embody a concise discussion of the procedures and standards approved by specially trained and experienced school health workers.

The needs of different communities should be considered in reference to their area, density of population, number of schools, number of children, distance between schools, character of population; and the standards should be based upon the possible equipment for health work; the working unit available; number of doctors and nurses in relation to number of children; whether the inspection law is permissive or mandatory; clinical facilities at hand; money available, etc.

In the amplification of any of the record cards previously suggested or in a consideration of the foregoing items, the opinions of practical workers in this field should be sought. These matters must be considered if the scope of practicable examination in routine school inspection is to be appreciated.

We may now consider such an examination somewhat in detail:

Eyes.

The Snellen card test should be given with the child seated twenty feet from the card. Where the distance is less than twelve feet the findings are not reliable. The same might be said of results obtained after three o'clock with natural light on the average winter day. The card should present an absolutely flat surface, should be at the proper level with a dark background, and should be well lighted. The child must not be facing a window or lighted door. The card covering the eye that is not being tested should not touch or press the eye. Children who do not quickly recognize the letters often respond to the chart that bears numbers, but here, too, care must be taken to avoid error, since some children with acute vision who "*know* their numbers" do not recognize them *as printed* on the chart, and therefore apparently do not respond to the test. With these children, or with the lower grades, the "illiterate chart" may be used. Even better than this, especially with kindergarten children or with children that are timid and not very responsive, I have found the McCallie cards for testing visual acuity. These cards place the test on the basis of a game and at times are a great aid. The card for near vision and the astigmatic chart may be useful in making a diagnosis more complete in some cases. It is not enough for the family physician, who later sees the case, to have the child read a paragraph in a newspaper and to ask his mother whether or not he can read the signs on the trolley cars.

The inspector's card usually has been sent after a visual acuity of less than 20/40, in children of most school grades, has been discovered, plus the concommitant symptoms, in many cases, of blepharitis, styes, blurring of print, squint, and frontal headaches. If glasses are worn, the date when they were obtained should be noted and whether they were secured through an occulist's prescription or were purchased direct from an optician. Swollen and thickened lids should be everted and examined with the possibility of trachoma in mind.

Ears.

The "watch test" is perhaps the most practicable. The examiner should have standardized his watch and should so give the test that deception or childish acquiescence to a query is eliminated. There is considerable variation in the response of children at different ages, and only experience in testing numbers of pupils of various grades will bring to the examiner rapidity in arriving at correct conclusions. Discharging ears should be a matter for serious concern, and a home visit in the interests of the child should be made promptly by the nurse.

Tonsils.

Tonsils that are enlarged, ragged and cryptic, especially when there is a history of attacks of tonsilitis or frequent sore throats with absence from school, are pathologic and are surely a menace to the health or even the life of the child. Where the child is under twelve years of age, however, the profession in general, seems about evenly divided as to the wisdom of operative procedure. The medical inspector should adopt some conservative standard to govern his parental notifications.

Nose.

The medical inspector does not diagnose adenoids. To diagnose adenoids one must use a light and mirror and *see* the adenoid mass, or must run the finger into the pharynx and *feel* it. Either of these procedures is not practicable in school work. He should determine the presence or absence of *nasal obstruction,* and if there is obstruction that appears chronic in character—that is, if it is not the obstruction due to swollen tubinates and the catarrh of a "common cold"—a card of notification should be sent. The family physician at his office may then determine the cause of the obstruction—as spurs, deflected septum, adenoids, etc., and the advisability of referring the case to a rhinologist. The high palate, irregular teeth, mouth breathing, nasal catarrh with eczema of nostrils, dull hearing and general inane facial expression may frequently make the diagnosis of adenoids a safe one, but the inspector's card should read—nasal obstruction—leaving the exact diagnosis and recommendations to the family physician or to his rhinologist.

Teeth.

It is sufficient to note the number of decayed teeth, in particular where the "six year" molars are involved; the presence of green stain, supernumerary teeth, abscesses and marked malocclusion. It is poor economy to employ a dentist to inspect the mouths of school children when we *know* that eighty to ninety per cent need dental attention, and where a glance at the time of routine medical examination or by a nurse or teacher will locate the pupils who should have treatment. If the services of a dentist are available it is far better to have him devote himself to the actual treatment of the most urgent cases located by inspector or nurse.

Nutrition.

A certain number of poorly nourished, anemic children will be discovered in every school as a result of routine examination. These children should be cared for in open-window classrooms at relatively little expense.

Careful examination of all school children will reveal a small number who have open tuberculosis. Where no provision is made for the care and training of these children they must be excluded from school for the sake of the other children. This means they are frequently forced into conditions that rapidly put them in the incurable class. The school district should make provision, perhaps jointly with coterminous districts, for the care and school training of such children in a special school of the "pavilion" type, while they are being cured of their disease.

The relation of age to height and weight is of minor importance to the examiner in estimating the nutrition of a pupil. The child is before him and he bases his judgment on something more significant than a few abstract figures which in themselves give him no mental picture of the case in question. For this reason, anthropometrical measurements of school children, while of value where intensive studies of special groups of children are to be made are of no practical value in routine school medical examinations. Even the taking of height and weight involves many dollars of expense in scales and stadiometers, and consumes hours of the inspector's time with no definite or practical result to be achieved. So far as the inspector is concerned, his estimate of poor nutrition must be based upon the pinched, pallid features; the arrested development; the lack of animation and spontaneous activity; the weak and flabby tissues and the signs of nervous exhaustion. Certain definite types soon become fixed in the mind of the examiner who has handled any considerable number of children.

Skin and Glandular.

Under this heading may be noted the presence of enlarged cervical lymph nodes and thyroid swelling. The large number of pupils with enlarged glands sometimes reported by examiners undoubtedly includes the children who have one or more slightly palpable nodes due to nose, throat or teeth defect. The things of importance in these cases are the adenoids, the chronically diseased tonsils or the decayed teeth. The enlarged nodes frequently associated with poor nutrition, those that become acutely inflamed and those that undergo softening are the ones that merit prompt attention.

The presence of any of the eczemas should be noted, since the record will perhaps serve to direct attention to the faulty nutrition, improper diet or digestive disturbances with which these skin conditions are so frequently associated. Any contagious or parasitic skin disorder should also be looked for, and parents should be urged to have treatment instituted at once for any acute or chronic condition from which the child is suffering. In the case of pediculosis a card should be sent, bearing directions for simple home treatment which the school nurse may later demonstrate in case the child's head remains unclean.

Orthopedic and Nervous.

Under this heading may be recorded stoop-shoulders and flat chest; lateral curvature; the chief results of paralysis, rickets and bone and joint tuberculosis. Here also may be noted the condition of "general nervousness," manifested by trembling, tensely held body, quivering eyelids and lips, low jerky speech, twitching of facial muscles, etc., in the irritable type; and drooping body, shuffling gait, listlessness, inattention, mental dullness, etc., in the apathetic type. Chorea, habit spasm, mental deficiency, the psychic disturbances of adolescense and the emotional instability due to early meningitis or to present epilepsy, should be kept in mind when examining children under this heading.

MISCELLANEOUS.

Here the examiner may record speech defects; congenital defects; and accidental or incurable conditions (for which no notification card is sent).

THE ACUTE CONTAGIOUS DISEASES.

The so-called acute contagious diseases constitute only from one-half to five per cent of the work in a system of school medical inspection. This is a very important though relatively small part of the work. The finest kind of co-operation should exist between the school medical inspector and the local health officer, where these two offices are not filled by the same man. Where an agreement can be reached as to uniform exclusion regulations in any given district these two officials can supplement one another's work with the result that the great majority of cases of contagious diseases will be under proper surveillance and "contact" children will be handled in a manner calculated to protect the larger body of pupils, but at the same time avoid needless loss of school time.

CONTAGIOUS SKIN CONDITIONS.

The principal contagious skin conditions from which school children suffer are: Contagious impetigo, scabies, ringworm of scalp, ring worm of body and favus. Children with one of these diseases should be excluded from school until they are well under treatment for the condition. If they return before cure is effected it must be with the lesions well covered with some medicament from their doctor or a dispensary, unless the nurse attends to these cases and applies proper remedies under the direction of the inspector from the medicine cabinet that should be installed in every school.

PRINCIPAL DISEASES AND PHYSICAL DEFECTS OF SCHOOL CHILDREN.

The list includes the acute exanthemata; the skin conditions named above, plus the eczemas; simple impetigo and a few rare skin conditions; alopecia areata; trachoma; conjunctivitis (simple and phlyctenular); enlarged tonsils; defective vision; nasal obstruction; enlarged lymph nodes; decayed teeth; goiter; poor nutrition; tuberculosis; chronic pharyngitis; defective hearing; lateral curvature of spine; stoop-shoulders and flat chest; various congenital and incurable deformities; congenital syphilis; chorea; habit spasm; general nervousness; paralysis; epilepsy; nervous disturbances of adolescence; enuresis; general uncleanliness and mental deficiency. A few of these are only symptoms of some underlying cause, but it is usually one or more of the symptoms named that will first bring the child to the examiner's notice. With the above subjects the school physician should be thoroughly familiar.

Another phase of the work that is very important is that which has to do with the health of officials that come in daily contact with pupils under more or less intimate conditions. This matter is covered in part in the school medical inspection law, which provides for the examination by the inspector of teachers and janitors where such examination seems specially indicated. Dr. Thomas D. Wood, of Columbia University, probably the leading medico-educationalist in this country, has given the question of the health of teachers much study, and has had an exceptionally wide experience upon which to base his statements. He states that two per cent of the children are being taught by teachers that are tuberculous and dangerous to the children, as well as being in a condition that unfits them for productive and strenuous service.

Personally I have had some experience with epileptic teachers. The *least* that any school system can demand is that a teacher to begin her service must be in fit physical condition, as certified to by their medical inspector, representing the interests of the school district.

Furthermore, public opinion would undoubtedly uphold any set of officials in the removal of a tuberculous or an epileptic teacher from the school system.

PURPOSES OF SCHOOL HEALTH WORK.

1. To detect and exclude cases of contagious disease, and to prevent epidemics of the same among school children.
2. To help in maintaining sanitary conditions and proper physical equipment in the schools.
3. To detect physical defects and secure correction of these defects through the co-operation of school officials, school nurses, parent, and family or dispensary physician.
4. To aid the Board of Education in passing judgment on the physical fitness of teachers and janitors.
5. To teach practical hygiene in school and home through the agency of the teacher and the school nurse.
6. To make special studies of the physical

and mental sides of child life, so that the best ways may be determined for giving the child the training suited to his individual needs.

7. To assist in furnishing to school children scientific physical training and proper recreational facilities.

8. To diagnose mental deficiency.

9. To co-operate with all agencies concerned in the social, moral, mental and physical improvement of the child.

Medical inspectors should familiarize themselves with the details of the above lines of activity as these form the essential background for the practicable routine of any adequate system of health care of school children.

The eighth purpose—the diagnosis of mental deficiency—is a very important function of an efficient system of school medical inspection. Expert examination of school children shows that about two per cent are of such mental constitution that they can never profit by the work of the regular grades. These children, scattered through the regular classes, are either neglected or punished instead of being studied. They bring to us most of the problems of truancy and incorrigibility, and are a tremendous drain upon the energies of the regular grade teacher. This type of child should not be taught like other children; he requires special care and treatment under conditions suited to his abilities. The educational authorities of many cities are alive to the great need of the proper segregation and training of these cases, not only for their own welfare, but for that of the normal pupils and society at large. The training of such children is a specialty in education, based upon a special psychology plus expert classification and study from a medico-psychological standpoint.

Many physicians, new to the work of medical inspection, have said to me: "I feel that if I am going to do this work I want to do it properly; I don't want to do unnecessary or useless things. I want to get results."

In reply to these statements I believe the best direction is:

1. Read a few good, practical books on the subject. "Health and Medical Inspection of School Children," by Dr. Cornell (F. A. Davis & Company); "Medical Inspection of Schools," by Drs. Gulick and Ayers (Survey Associates); "The Hygiene of School Life," by Dr. Ralph Crowley (Methwen & Company, London); "School Health Administration," by Dr. L. W. Rapeer; "The Hygiene of the School Child," by Terman; "Civics and Health," by William H. Allen (Ginn & Company); "Health in Education," by McKenzie, are sufficient to present a fair idea of the scope and purposes of the work and recognized methods of administration. Medical inspection, however, cannot be learned wholly from books.

2. Visit some city where a system of inspection of recognized efficiency is in operation. Observe the actual routine administration, and ask questions.

3. Keep in touch with some experienced examiner of school children for some months at least, until the details of your particular system have been worked out to your satisfaction, and you have come to an understanding of the scope and possibilities of your work and have had an opportunity to test your work by the only real criterion—*results.*

4. Be familiar with the latest advances along the various lines of educational hygiene.

5. Keep an open mind; remember there is work enough and glory enough for every one. Forget not the magic word—*co-operation.*

The spirit of helpful understanding must be abroad. It must stir every individual educator, teacher, physician, dispensary chief, social worker, medical inspector, nurse, dentist and physical educator. If the medical profession as a whole and parents at large awoke to the wisdom of health supervision *prior* to school age, and worked hand in hand with the school and child hygienist, this co-operation would more than double the results of present methods. It would raise the health standard among school children and fulfill one of the vital objects of school training—the bringing of the child to maturity with his powers so developed and his energies so conserved that the richest returns may accrue to the state in its vigorous men and women.

Lord Beaconsfield said: "The public health is the foundation on which reposes the happiness of the people and the power of the country." There is no larger stone in such a foundation than the health of the twenty million school children in this country.

SOME PRELIMINARY SUGGESTIONS WITH STANDARDIZATION OF THE WORK ALONG VARIOUS LINES IN VIEW.

1. One doctor and two nurses for every 3,000 children.

2. A full-time inspector and two nurses in every district of 30,000 population.

3 Part-time inspectors to be employed for at least two hours daily for the entire school year.

4. If the choice between a full-time nurse or a part-time doctor to initiate the work is imperative, the full-time nurse is the more desirable.

5. The special training of school nurses in addition to the regular hospital course and registration under the laws of their state, and their selection as school nurses on the strength of their credentials and apparent personal fitness as considered by the executive under whom they are to work.

6. Treatment by medical inspector and development of school dispensaries where local clinical facilities are inadequate.

7. The recognition of the fact that the type

of examination for purposes of routine work of necessity will be modified by variations in the "working unit," physical equipment, etc., and that standardization of these features must be our first consideration.

8. A careful selection of higher executives in the work in order to insure the propagation of intelligent public opinion and a comprehension of the development of the work along constructive lines.

We must recognize the fact that school health work is far more than putting glasses on children who cannot see well, removing adenoids and tonsils, and filling decayed teeth; it involves a wide understanding of the various social, educational and economic problems that are closely bound up with the physical condition of the child. If the administration of school health work does not take cognizance of these various agencies bearing so intimately upon the nature of the physical child in school, the scientific approach to the many-sided problem is not possible and educational hygiene is merely a name.

DIAGNOSIS AND TREATMENT OF URETERAL CALCULI.*

By EDWIN BEER, M.D.,
NEW YORK CITY.

THE great advance in this field is undoubtedly due to the recent development of perfected radiographic work. Only a few years ago the surgeon approached these cases without any definite idea as to what he was going to find and very frequently a most extensive operation was done before the offending calculus was located and removed, if found at all. The results published by J. Israel in 1901 show rather eloquently how serious this condition was. In sixteen cases of ureteral stone operated upon by him, six died. Owing to inability to locate the offending calculus or calculi, the operator frequently was compelled to leave the calculus undisturbed.

Only a little more than ten years (1912) later, the same surgeon availing himself of the scientific developments of this period, published fifty-three cases with only two deaths. Extensive exploratory operations exposing the kidney and ureter down to the bladder, are now rarely indicated and the surgical treatment of ureteral stones has become a comparatively safe procedure. Nowadays, thanks to the radiograph and to the regular employment of the cystoscope, the operator almost invariably approaches these cases, knowing that there are one or more stones in the ureter and just where the stone or the stones are located. The operative therapy has become precise and the surgical procedure has been markedly simplified, with the result that the mortality from this operation has declined with astonishing rapidity.

The following paper is based on an analysis of ninety-eight cases, excluding all cases of gravel and sand. Of these, only thirty-four cases came to operation. All operated cases made an uneventful recovery. In thirteen of the operated cases, the ureter was opened through a lumbar incision; in eighteen, the approach was along the lateral border of the rectus muscle (extraperitoneally) to the pelvic ureter; in two, the kidney and ureter had to be removed; in one, the stone was reached through an opened bladder. Of the remaining sixty-four cases, forty-four cases passed their stones. Of these a large number had had ureteral instrumentation which may have assisted in the subsequent passage of the stone. The time relation between the instrumentation and the passage of the stone was such that only in a small percentage does it seem probable that the passage of the stone was facilitated by the ureter instrumentation (catheterization, stretching, injections). The end results in the remaining twenty cases is not known.

In studying this series of cases the following diagnostic routine has been developed and its employment has given satisfaction. It must be borne in mind that in this type of case repeated examinations, radiographic and cystoscopic, may be necessary before a correct interpretation is reached, and if all the modern aids are employed, it is my firm belief that only rarely will mistakes in diagnosis be made.

Diagnosis.—1. In every case that suggests by virtue of its history and its urinary analysis the possibility of a ureteral stone, a series of radiographic plates of the whole urinary tract is taken. These plates are carefully studied and all shadows along the course of the ureter are noted. With careful radiographic work, for which we gladly thank Dr. L. Jaches, over 90 per cent of our cases in which the stone was recovered, gave positive shadows. For this estimation we had some fifty-two cases in which the stone or stones were recovered (by operation or by passage). Of these forty-nine cases were positive, three were negative. Of the latter, two were uric acid or uratic calculi and one was a minute calcium oxalate stone. Of the rest of the series, about one-half were not radiographed for one reason or another and the remaining gave positive shadows except in four instances. In the four latter, the history, urinary findings, disturbance in indigocarmin output and obstruction to the passage of the ureteral catheter established the diagnosis. As the stones were not recovered in this group of twenty-two cases, they have been excluded from our calculations in estimating the frequency of radiographic demonstration of calculi. Even if they were added to the above fifty-two cases, in which the stones had been recovered, our percentage of positive radiographic results would be but little changed, i. e., in seventy-four cases, eight negative results or 89+ per cent positive results. With argyrol ureterography, a higher percentage of successes are obtained. If the shadow is typical and subsequent cystoscopic examination confirms the tentative diagnosis based on the history and plates, no further radiographic studies are made. If, however, the shadows are atypical or none are present and the diagnosis is not certain, further radiographic studies with argyrol injections into the ureter are made. These are infinitely more valuable (see lantern slides) than radiographs with so-called X-ray catheters in the ureter or ordinary stereoscopic plates. The X-ray catheter may pass the stone in the ureter leaving a distinct interval between its shadow and that of the calculus or its shadow may overlap that of an extraureteral shadow, while the former, the ureterograph, will almost regularly not only show the relationship between the stone and the ureter but also will demonstrate the dilatation of the ureter behind the stone and at its site. *The importance of the ureterograph cannot be over-emphasized.*

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 18, 1916.

2. The next step is a cystoscopic examination and ureteral catheterization after a deep injection of indigocarmin. The stone in some cases will be seen in the ureter meatus confirming the diagnosis at once. In other cases the peculiar edema about the ureter meatus will confirm the diagnosis. In the majority of our cases further studies were necessary before the diagnosis was confirmed. In a very large number of these cases, the ureteral catheter met a definite obstruction in its passage up the ureter and when so obstructed, the site of the obstruction was seen to correspond with that of the shadow in the radiographic plates. Of the thirty-four cases that came to operation in at least twenty-four cases the ureteral catheter was obstructed by the calculus. Repeatedly such an obstruction was passed by careful manipulation and retained urine was obtained from the dilated ureter and pelvis above the stone. Another very striking feature in at least half of the cases that came to operation was the disturbance in indigocarmin output. In 50 per cent of the cases this was either absent or markedly diminished as compared with the other, normal side. Together with the diminished output of indigocarmin there is usually a diminished concentration of the urea output as compared with the normal kidney. Approximately the same figures relating to the obstruction of the catheter and the diminished output of indigocarmin were obtained in the cases that did not come to operation. Further evidence of the presence of a calculus may be obtained by employing a wax-tipped bougie which may become scratched on passing the rough stone. This, in my hands, has not regularly occurred and in stones that are covered with mucopus, such mark will rarely be produced.

Again there is another small group of cases in which the history and urinanalysis suggest a ureter stone and in which all the above methods of examination have to be employed to exclude the presence of a stone. It is in this group, of non-calculous, usually mildly inflammatory conditions, that the procedures outlined—this paper has proven of great value.

There is a small group of cases* in which the history and urinanalysis suggest a ureter stone and in which the routine X-ray examination fails to show any definite shadow on repeated exposures. This may be due to the composition of the stone, or the size of the patient, the radiographic technic not being at fault. Uric acid stones as well as uratic stones unless other salts (calcium, magnesium phosphate, etc.) are present, will not throw a shadow and in these cases, of which I have had several, the cystoscopic examination together with the argyrol ureterograph will prove of diagnostic value. How often such stones occur is not known. Of some thirty ureteral calculi analyzed for me by Dr. S. Bookman, four belonged in this group, and as will be seen in the lantern slides, the argyrol ureterograph with the cystoscopic exploration was of greatest diagnostic value.

Treatment.—In view of the fact that at least 50 per cent of the ninety-eight cases passed their stones without a cutting operation, perhaps assisted by cystoscopic procedures, it becomes evident that the indications for operative interference must be carefully made. In some few cases with the operating forceps a stone can be seized and drawn out of the ureteral meatus. In others it can be wedged out with a catheter. In stones higher up, dilatation of the swollen meatus, or injections of glycerin or oil, if still higher up, may be tried, without, however, any guarantee of success. Whether the passage of the ureter catheter leads to a change in the axis of the stone, so that nature can expell it more readily, as recently suggested by Brasch, is highly doubtful. Most stones are too firmly fixed to allow of such a response to the feeble efforts of a ureteral catheter. Copious draughts of water following all ureteral instrumentation are of value, especially if such traumatism leads to a ureteral colic. I have the impression that as the result of ureteral manipulations especially those that are rough, a reaction may set in which blocks the ureter, and then with sufficient back pressure, the stone may advance and be passed. In some cases these manipulations may be tired more than once, though that will usually depend upon the patient's tolerance and the surgeon's enthusiasm for this type of procedure.

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* Probably less than 10 per cent of all cases.

The indications for operative interference are:

1. Large size of calculus; stones as large as an almond pit rarely pass spontaneously or after ureteral manipulations, even though occasionally larger stones have been passed as in Furniss' case, in which a stone the size of a pigeon's egg was passed after burning through the ureteral meatus with the high frequency cautery.
2. Repeated colics that do not advance the stone and interfere with the patient's activities.
3. Constant pains which interfere with the patient's activities.
4. Infection of kidney and ureter behind the stone.
5. Anuria due to ureter stone.
6. Stone in ureter of solitary kidney.
7. Extensive disease of second kidney.
8. Immobility of stone without pain.

In general it may be said that prior to the use of the more modern methods of diagnosis, enumerated above, operations for this condition were rare. With the introduction of the radiograph, every shadow came to operation. Then came the third period in which, owing to the fact that so many cases passed their stones, surgeons became ultraconservative, forgetting in a measure that the presence of a stone in the ureter was not without danger to the patient. Now, I believe, we are in the fourth period of the development of this field of surgery and with the markedly reduced mortality, more cases will come to operation again. I say this advisedly as the greater my experience in this line of work, the more convinced I become that the secondary changes behind the stone, dilatation with consequent retention and destruction of kidney parenchyma with or without infection, are liable to lead to further trouble in the kidney proper. A review of the histories of nephrolithiasis cases that have passed stones, i. e., have had ureter stones, will show that a considerable percentage require later operations upon the kidney. This may possibly be prevented, it seems to me, by avoiding months of delay in the conservative treatment of ureteral calculus cases.

DIAGNOSIS OF RENAL TUBERCULOSIS.*

By THOMAS F. LAURIE, M.D.,
AUBURN, N. Y.

TUBERCULOSIS of the kidney is a condition which is essentially chronic, insidious in its onset, beginning usually in one kidney, steadily progressive in character and which unless relieved by surgical means proves fatal except in a very small percentage of cases.

Much has been written in the past few years on this subject, statistics have been compiled and the literature thoroughly reviewed, nevertheless a great many of these patients are not referred to the urologist or general surgeon until the disease is well advanced. In a report from the Mayo Clinic of 212 patients operated on for this condition, 71 per cent were found to have had the symptoms for more than a year; 87 per cent for over five years; and 13 per cent for over ten years. These figures are fairly typical of conditions in other clinics. Why should these patients be allowed to suffer so long? There are several reasons for this: (1) A thorough knowledge of tuberculosis of the genito-urinary tract is not found among the general practitioners; (2) The treatment by surgical means is not generally known to be the best; (3) In the majority of patients the symptoms are slight (though significant), and are not heeded.

The slight irritability of the bladder which does not yield to ordinary therapeutic measures is just as suggestive as the slight cough is of pulmonary tuberculosis; the diagnosis, in the proper hands, can be positively made; the process in the early stages is generally unilateral; the treatment by nephrectomy in the early cases is fraught with good results. Braasch has said "Continued nocturnal bladder irritation in young adults accompanied by pus in the urine should be considered due to renal tuberculosis until proven otherwise." There are certainly numberless cases of this disease which have been in the past and still are being treated for "cystitis." The diagnosis although often beset with difficulties is one which can be made with a nice degree of exactness. The poor results in treatment are due to late diagnosis or those in which the proper treatment has not been instituted early enough. There is no doubt that the failures in relief of symptoms are in direct proportion to the delay in proper treatment.

In 80 per cent to 90 per cent of the cases the initial symptoms are those of a very severe cystitis. The onset is usually gradual. This may be due to reflex irritability of the bladder in the early stages and later to actual severe lesions of the mucous membrane all the way from a solitary ulcer to extensive erosions with a bleeding surface. The patient may complain of frequency with very little pain, only slight burning on urination; the frequency may be every half hour to hour during the day—every hour to two hours during the night. In many the desire to urinate must be satisfied at once or there may be an involuntary emptying of the bladder. This last is a very important and fairly constant symptom. These local symptoms may go on indefinitely or there may be periods of remission when there is comparative comfort. If the urine be examined at this time it will be found that there is polyuria; it is pale, low specific gravity, acid and shows pus and albumin. In about 25 per cent of the cases there is hematuria.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 18, 1916.

Symptoms referable to the diseased kidney are notably few. In about 20 per cent of the cases there is pain in the affected kidney or there may be a tumor. These symptoms occasionally mark the onset of the trouble. The tumor is caused by an actual enlargement of the kidney itself or by a hydronephrosis due to blocking of the ureter. Severe abdominal pain sometimes ushers in the symptoms followed later by the bladder irritability.

The general symptoms, such as chills, fever, night sweats, loss of weight, etc., have purposely been mentioned last because the general condition of these patients is usually fair to good. In many of them if the history is elicited carefully there will be found that preceding the appearance of any symptoms there is a period of gradual constitutional deterioration of an indefinite character with no assignable cause. However, in the majority these symptoms are not enough to attract attention.

What, then, is the proceedure when a patient presents himself with a persistent irritability of the bladder, to determine whether or not these symptoms are due to renal tuberculosis and if so which kidney is diseased? The first thing is to obtain a careful clinical history. Patients having any of the symptoms described above should be interrogated with tuberculosis of the kidney in mind. How long have the symptoms continued? Is there frequency of urination? Does the patient have to arise at night to urinate and if so, how often? A careful examination of the urine is the next step. If no pus is found tuberculosis can be fairly positively ruled out. If it is present in successive specimens a search should be made for tubercle bacilli. Demonstration of this organism assures the diagnosis and from the fact that the process is more often primary in one kidney or at least in the kidneys rather than in any other part of the genito-urinary tract we can say that one or both kidneys are involved. If the organism be not found it does not force the conclusion that tuberculosis is not present for the reason that it is difficult to find tubercle bacilli in urine and particularly so in the early cases. I think this is partly due to the fact that these organisms are not constantly being thrown down in the urine just the same as we find a varying amount of pus in successive examinations. There is also the danger of other acid fast bacilli such as the smega being confused with it. The other method, that of guinea-pig innoculation may demonstrate the presence and is no doubt, more delicate than the staining method, but even this is not infallible, for the same reasons as the staining method, and it has the added disadvantage of consuming a great deal of time. A complete diagnosis is only made by catheterization of ureters.

I believe that these patients should have the advantage of a cystoscopic examination where there are even the slightest symptoms which would lead one to suspect that there is tuberculosis of the urinary tract. This is not a formidable procedure; in the majority of cases it does not require a general anesthetic and gives us more information than we can get in any other way. I think it is possible by a consideration of the symptoms, examination of the ureters by vagina or rectum and possibly by tuberculin results to locate the disease in one side or the other but this gives no information as to the status of the other kidney which is a very important factor in the prognosis and treatment.

It is not always possible by one cystoscopy to determine enough to warrant radical treatment. One thing that is rather characteristic of these patients is the extreme sensitiveness of the bladder and the consequent inability to hold much fluid. This naturally precludes the possibility of a successful examination. However, if these patients are allowed to rest and put on small doses of santal oil for two weeks to a month or even longer a successful cystoscopy with the aid of a local anesthetic is possible in almost every case. It is one of the most difficult procedures even in competent hands to find and catheterize the ureters. Often the bladder is extensively involved so that all the normal landmarks are obliterated.

Frequently the intravesicle picture is such that to the expert in cystoscopy the diagnosis and location of the disease is assured. The appearance of the ureteral orifices may be such as to indicate which kidney is involved. The meatus of the ureter may be so surrounded with granulations that the passage of the catheter is not possible. Resort must then be made to chromoureteroscopy to find the ureter. Strictures of the affected ureter are often found of sufficient extent as to prohibit the passage of the catheter, or even of the infected material from entering the bladder. This may allow the bladder to partially recover although probably from time to time enough may be discharged to give intermittent attacks of bladder irritability. If it is possible to catheterize and obtain a specimen of urine from each kidney the findings are of enough significance to warrant early radical treatment. The urine from the diseased kidney on gross examination is much greater in amount than that from the other kidney, very pale, and is quite clear, in contrast to the turbid urine obtained from the bladder. Further examination shows it to be acid, of low specific gravity, containing albumin, pus, and tubercle bacilli. The urea percentage is much lower as a rule than the normal side. This is more to be depended on than the findings of the phthalein test because unless a catheter of sufficient size to occlude the ureter is used some of the urine is bound to leak down alongside of it, thus the total amount of the dye is not collected and may lead to erroneous conclusions. If the tubercle bacillus is found the diagnosis is assured. If not, guinea pig inoculation should be carried out. As has been mentioned before it is often impossible to demonstrate the tubercle bacilli in the urine, guinea pig inoculation consumes much time, may be negative and may be impracticable. Given a continued bladder irritability and acid pyuria, with cystoscopic findings such as I have described without demonstrating the presence of tubercle bacilli the diagnosis is justified and radical procedure should be instituted.

Another important aid is the external physical examination. Nodules of the prostate, vas, or epididymis, with some of the other characteristic symptoms are very strongly suggestive. Palpation of a thickened ureter by vagina or rectum is fairly conclusive that the disease is on that side if urinary tuberculosis has been previously proven and it be impossible to obtain sufficient data by cystoscopy due to the inability to catheterize the ureters on account of technical difficulties. The finding of a kidney mass be it either enlarged kidney or due to a hydronephrosis is also fairly conclusive under the same conditions.

Radiography may disclose the outline of the kidney and may also show calcareous deposits. Pyelography may be used in those cases where the tubercle bacillus has not been demonstrated, the guinea pig inoculation impracticable or negative, the clinical and cystoscopic data uncertain. Only where there is doubt should it be used. Search for tuberculous lesions in other parts of the body should not be neglected.

The tuberculin tests may aid but are not to be relied upon. The skin reactions are not of particular value because even if positive they do not aid in localizing the process. The subcutaneous reaction may aid in that besides being positive, it may occasion pain in the side of the affected kidney.

This condition must be differentiated from:

(1) *Non-tuberculous Cystitis*—In this the onset is more acute and it responds more quickly to local and medicinal treatment. The tubercle bacillus is absent; urine usually alkaline in reaction and the cystoscopic pictures and findings are characteristic.

(2) *Pyelonephritis*—The symptoms and course are more acute, and direct one more quickly to the kidney. The bladder symptoms are not so prominent. General septic symptoms are present. No thickening of the ureter. No tuberculous changes in the bladder.

(3) *Renal Culculus*—Here the characteristic attacks of renal colic are important. Blood is more constantly present. Pyuria is not prominent. The X-ray and wax tipped catheter with the absence of tubercle bacilli in the urine, generally serve to differentiate.

(4) *Renal Tumor*—In this the absence of pus in the urine, painful urination and tubercle bacilli together with the pyelogram give sufficient data to avoid confusion.

CONCLUSIONS.

(1) Renal tuberculosis is not uncommon.

(2) Continued acid cystitis with pyuria which resists all local treatment should lead one to believe that renal tuberculosis is present until proven otherwise.

(3) The cystoscopic examination is the greatest aid in diagnosis.

(4) A fairly positive diagnosis is possible without demonstrating tubercle bacilli by staining or guinea pig inoculation.

(5) Cure or even relief of symptoms depend largely on early diagnosis.

Discussion.

DR. EDWARD L. KEYES, JR., New York City: Doubtless one of the most important points which the general practitioner may carry away from this rather technical discussion of specialists is that insisted upon by Dr. Laurie, i. e., that spontaneous cystitis in a young person is usually due to tuberculosis, and a patient having such a cystitis should be suspected of tuberculosis until this is proven not to exist.

The difficulty in finding the ureter mouth in some of these cases has been minimized in my practice by performing cystoscopy after intravenous injection of 5 or 10 c.c. of saturated solution of indigo carmin (as suggested by Dr. Furness.)

Spinal anesthesia has also been of great assistance in the diagnosis of difficult lesions due to tuberculosis. We have employed it at Bellevue Hospital a great number of times in this class of cases without any bad results whatsoever.

Dr. Beer has related some remarkably successful results which he has obtained from the use of tuberculin in the diagnosis of difficult cases of urinary tuberculosis. And Dr. Laurie has enumerated various means whereby one can approximate a diagnosis when catheterization of the ureter seems impossible. Yet one makes so many mistakes even under the best of circumstances that I feel moved to insist rather more strongly than Dr. Laurie seems to do upon the necessity for cystoscopic evidence on the condition of both kidneys before operation is attempted.

DR. EDWIN BEER, New York City: In the main all the points that Dr. Laurie has made bear out the experience that I have had in a rather extensive service of renal tuberculosis cases, but there is a whole group of cases in which the diagnosis as Dr. Keyes said is most difficult. In general the history and ordinary cystoscopic examinations with ureteral catheterizations will point to the diagnosis, and will indicate what should be done, that is in a nephrectomy. In the great majority of cases over 80 per cent in a service of perhaps a hundred cases that I have had, the tuberculosis bacillus has been found in the separated or combined urines.

As Dr. Keyes also hinted the use of tuberculin in making the diagnosis has been neglected. It is used not only to get a focal irritation in the kidney which will show itself by tenderness but to get a tubercular bacilluria, where before there was not such bacilluria. The relative value of the slide examination and the guinea pig inoculations also comes up for consideration. I think in the great majority of cases, and I am speaking only from my own experience, the slide when it is positive, that is the specimen obtained from the kidney centrifuged and stained on the slide, when it is positive usually means tuberculosis of the kidney. But I have had an experience in which I thought I had a renal tuberculosis diagnosed on that basis and subsequent examination of the separated urine, the urine obtained from that kidney, inoculated in the guinea pig six months later was negative. The urine was absolutely clear. The only satisfactory explanation of this is a contamination from passages of the ureter catheter through a bladder that was extensively involved with tuberculosis. In other words despite the greatest care in passing through the bladder fluid, the bladder having been washed with greatest care, you may take the tubercle bacillus up into the ureters and then subsequently find them on your slide. Such positive results happen much more often in my experience with guinea pig inoculations. The guinea pig inoculation is so sensitive that perhaps one or two bacilli in your fluid carried up from the bladder into the ureters may produce a tuberculosis in the guinea pig, and thus mislead you.

There is another type of case in which this is liable to occur. I was just talking with Dr. Keyes about them before the meeting. That is prostatic tuberculosis cases in which the prostate is emptying millions of tubercular bacilli into the urinary stream, here the above contaminations are liable to take place. It has taken in a case that I have studied during the last two months, five weeks study to actually prove that in a case of prostatic tuberculosis, the kidney was also involved.

This patient—and I would like to recount the history, to show you how difficult the diagnosis can be—was cystoscoped; one-half his prostate was atrophic and nodular, urine was turbid and contained myriads of tubercle bacilli—the right ureter was wide open so that bladder fluid plus urine drained from the pelvis. In other words, I was collecting urine which was contaminated, had tubercle bacilli. The left ureter could not be catheterized. I thought I had a good left kidney. The patient's bladder was injected with argyrol, that is 3 ounces of argyrol placed in the bladder, and the patient was raised in Trendelenburg position to outline the right open ureter and the right pelvis so that I could see to what extent the right kidney was involved. Much to my surprise the argyrol went up both sides, up the left ureter which I could not catheterize, on two occasions having used six or seven different sizes of catheters. Now if I had been able to go up that side as well as the other side I would have undoubtedly gotten a reflux from the bladder, with tubercle bacilli on both sides suggesting very strongly bilateral tuberculosis.

This I considered a case which could only be cleared up by tuberculin. It took two weeks of a tuberculin course to prove that only the right kidney reacted to tuberculin. I was not satisfied even then, so when it came to operation last week I was compelled as I have been in these difficult cases to expose both kidneys to see whether one or both were diseased. In doing that, as I have been compelled to do it in these complicated cases, I have been struck with the importance of palpation of the ureter. Whether the tuberculosis is on one side or the other can frequently be determined by palpating the ureters. The ureter on the tuberculosis side is almost always thickened while the ureter on the other side is usually soft.

From the standpoint of diagnosis in general, I think Dr. Laurie might add to his paper the fact that sterile acid pyuria is significant of tuberculosis. It is much more significant of tuberculosis than just acid pyuria. I mean sterile in the ordinary bacteriological sense, not sterile in the sense of guinea pig inoculation.

Dr. Henry D. Furniss, New York City: I got into the wrong room and unfortunately missed a good part of Dr. Laurie's paper but there are several points that I want to speak on. My work has been entirely in women and the presence of acid bacilli and pus in a catheterized specimen from a woman means that at least one kidney is involved. In my experience I do not think there have been any cases of bladder tuberculosis which were not subsequent to renal tuberculosis. We have had great success in finding tubercle bacilli, finding them in 85 per cent, and I believe that would have been increased if experts had examined all the cases, instead of some of them being examined by hospital internes. They were not found the first time in some of them, but only after repeated examinations.

Now the next point sounds like heresy. We have had two cases where we have found tubercle bacilli in the urine and one of them in quite large numbers when the guinea pig inoculation was negative. I would like to put that on record. We have not had any positive guinea pigs where we have failed to find the tubercle bacilli. I think that probably by Carbtree's method of slowly centrifuging the urine, to throw down the pus cells that we will get the bacilli earlier. The cases where we have failed to find the bacilli have been the early, and the very late cases. In my experience in practically every case that has come under my observation we have been able to determine which side was involved from a simple cystoscopic examination by the appearance of the ureter.

Of course as my work is entirely with the female we have the advantage of being able to eliminate the prostate.

Another point I want to register is that it is not necessary to catheterize the involved ureter except in the very early cases. Where you have tubercle bacilli and the appearance of changes around the ureter and delayed indigo-carmin elimination, I think it is not only not necessary but positively harmful to catheterize the involved ureter, but I do think it is necessary to catheterize the ureter on the supposedly healthy side to determine whether or not that kidney is involved. In the catheterization of this ureter I think that a constant slow stream of boracic acid should be run through the ureter catheter from the time the instrument is introduced into the bladder until the catheter is well up into the ureter, to avoid the possibility of having bacilli in the bladder getting into the catheter.

Another thing that I want to point out is that in cases of marked tuberculosis they are very intolerant to over distension, and in the female the possibility of cystoscoping them without damage by the Kelly method is to be borne in mind. You cannot get any greater atmospheric pressure than when you put the patient in the knee chest posture and in that way you can see the bladder very well.

A point that Dr. Beers brought out was the dilation of the ureter. I have seen the dilation of the ureter quite often on the good side in the cases that have had marked bladder involvement for a long time. The ureter on the better side becomes markedly dilated, but generally the lips are flaccid and not indurated.

In the point that was brought out about the sterile urine, it was pointed out a number of years ago that in some cases of calculus pyelitis the urine was sterile in the ordinary sense of the word. I have only had one case in which that was present.

Another point of great importance was emphasized by Dr. Beer in the exploration of the ureter through the loin of a woman who had tuberculosis of the kidney. They usually have had it for two or three years when seen. The ureter can nearly always be palpated through the vagina where we are unable to make a diagnosis of whether one or both kidneys are involved by a cystoscopy. If you palpate one thickened ureter through the vagina, put the blame on one side at least. And then the other side may have to be explored through the loin to determine whether or not it is involved.

Dr. Martin B. Tinker, Ithaca: I hesitate to get into this discussion which is technical and belongs to the genito-urinary men, but I want to emphasize two points from the standpoint of the general surgeon. All of us should get the benefit of the work which our confrères are doing. I should not feel any more justified in going into a kidney case without careful diagnosis of some man competent to undertake it than I would think of doing the eye work in case of brain trouble or going over the neurological features of the case.

Another point of importance, is the permanence of cure after an operation for tuberculosis, which depends very largely upon how well we are able to enforce careful living. These people by good right should sleep outdoors. Their general living and care should be as carefully regulated as that of a person who has advanced tuberculosis of the lungs and unless we are able to get this, there will be considerable percentage of returns. Almost every day at home I see one of the librarians of Cornell University upon whom I operated over ten years ago for tuberculosis of one of her kidneys so far advanced that she had a discharging sinus which has existed for several months when she came to operation. She is apparently in perfect health and has been doing useful work for a number of years.

The general man should get this into his head, that tuberculosis of the kidney is not a hopeless condition, even in some of the advanced cases, if it is properly handled. These two points need special emphasis for the men in general work, general practitioners and general surgeons: the need for careful diagnostic measures and the need for carefully regulated life as long as the patient lives.

CONTRACT PRACTICE.*

By JOHN V. WOODRUFF, M.D.,

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CONTRACT practice is found under many phases and its limitations are boundless and difficult to settle to the satisfaction of all concerned. It is, therefore, the purpose of this paper to consider only those forms of practice connected with fraternities and big business enterprises, governmental and municipal forms being recognized as more or less indispensable at the present time.

We must concede the fact that the basic principle underlying the subject is that which has determined largely the activities of mankind from time immemorial, viz., the struggle for existence. The cave dweller began it in defending his rights with a club. Civilized mankind, as we are pleased to term ourselves since education has been defined as the "superior adjustment of internal conditions to external surroundings," is now using the more subtle forces of diplomacy and the arbitrament of the sword. We are met to analyze those influences arising through diplomacy effecting physicians and their patrons and to determine whether they are morally, judiciously and economically applied.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

In entering upon the question of contract practice certain queries fundamental to the subject obtrude themselves very strongly upon the inquirer. If he is at all interested in the future of medical practice and the welfare of coming physicians and their patrons, these questions recur, if arrested and put aside, until fitting answers are given. They haunt the mind and shadow the study of the thinker, giving rise to grave forebodings of a time to come when a climax must be reached and a readjustment established. The physician, like all human kind, is a producing force, not an event, and as such is amenable to the laws of reciprocal relations. History shows that whenever one class has been commercialized for the benefit of another, disruption and readjustment inevitably follows sooner or later. The law of reciprocal relations cannot be continuously broken. Let us remember that the experience of the past is recorded that we may profit thereby. The questions arising in the mind of the enquirer anent this subject are as follows:

What is the origin of contract practice as it exists in the United States?

What is the present status of contract practice?

What effect has contract practice upon the physician?

What effect has contract practice upon the patient?

What is the duty of the State Society concerning contract practice?

What is the origin of contract practice as it exists in the United States? This mode of practice is partially an importation from Europe, where the idea first originated some thirty odd years ago, and partially an expression of the get rich quick system so prevalent at present in this country. Its origin was not based upon philantrophy as some have been led to believe. If we probe the question to the last analysis we will see that it was not even an effort to assist the working classes to receive medical attention at moderate prices, except in isolated instances. Attempts have been made to convert the people to this belief, but the shrewder ones have clearly seen that the physician, when whipped into line, has a selfish, ultimate interest at stake and that the managers of corporate interests have still more designing efforts in their own behalf. In fact, to a very large extent, contract practice has been thrust upon the medical profession through the wily machinations of attorneys and business managers who clearly foresaw the benefits to be derived in behalf of business interests. Had it not been for the ready acceptance of this method of dealing with the working classes by business managers the lodge promotors would undoubtedly have failed in their endeavors, for the lodge doctor would have fallen into utter disrepute had he not been bolstered up by the corporation physician and surgeon. It is very easy to see why contract practice became so universally popular with big business managers who were keen to discern multiple benefits that would accrue to the corporations through its installation.

Firstly, the management is able to placate the workman through an ostensible effort to present to them free medical services at the expense of the corporation.

Secondly, the corporate managers receive from the physicians strict records of each workman's physical and mental condition coming under their observation and are thereby better able to decide whom to retain.

Thirdly, an accurate foreknowledge is obtained concerning the medical testimony that will be given in a case of litigation over the injury of an employe. The corporation physician and surgeon is, to a very large extent, a portion of the property of the corporation and like the workman is a spoke in the industrial wheel, but unlike the workman is more likely to be loyal to the corporation. He must talk and act in accordance with the instructions of the managers, even though it does conflict with the welfare of his patient. This clearly invalidates the pre-established idea that the first duty of the physician is towards his patient. Such a dénouement as this places the physician in a very compromising position and greatly endangers his self respect. He must so act towards his patient as to win his confidence, at the same time knowing full well that he cannot, if placed before a jury, adhere strictly to the golden rule.

What is the present status of contract practice?

The idea that this comparatively new method of practicing medicine is a fragmentary part of a great evolutionary movement towards a co-operative or socialistic change exists in the minds of some who have studied the question from a standpoint of sociology. That this movement is unprogressive and not in accordance with a proper adjustment of social relations is evidenced by the fact that its tendency is destructive, not uplifting or constructive. In cannot be otherwise since it is very plainly evident that both the physician and patient are detrimentally effected.

However, the growth of contract practice has been so amazingly great during the last twenty-five years as almost to preclude belief. The undoubted evidence of its marvelous expansion lies clearly before us and can be seen by all who care to be observant. Practically all of the large cities are fairly honeycombed with lodges, steadily increasing in number, with a constantly growing membership and a constantly growing percentage of membership relying upon the lodge physician in case of illness or surgical necessity. The statistical record of lodges proves the increasing popularity of the lodge doctor. New organizations based upon fraternalism and cheap medical services are coming into existence every year and while some of the members belong to several orders the great majority are unable to pay dues in more than one. Buffalo, N. Y., can boast of 240,000 people, who can or do have the services of a lodge physician for the munificent sum of fifty cents to one dollar per head per year, and as near as can be ascertained this percentage of over fifty is not especially different from that found in other cities of the same size and of similar manufacturing facilities throughout the eastern portion of this country. The number of people being treated in this manner has, at a conservative estimate, been multiplied about fifty times during the last twenty years. At this rate of retrogression where will we stand in another twenty years. We are rapidly breaking off old habits and forming new ones in our method of extending medical aid. Let us be not unappreciative of the fact that habit is one of the most potent forces in the universe working through mankind and that civilization rests upon habits firmly grounded by aeons of experience. While gradually molding the thoughts of physicians and laymen concerning the manner of administering to the sick and injured we are incidentally conveying the impression that the physician is a man of small worth, willing to sell his services for a mere pittance and not above political subterfuge.

Thus far the rural districts have been comparatively free from this medico-fraternal incubus so thoroughly established in cities. The farmers are now beginning to take careful notice of the manner in which their city friends are cutting medical expenses. Items appearing in the rural papers at frequent intervals show that soon there will be on foot a movement to include farmers and villagers in the great host of people who are entitled to easily purchased medical services. The surgeon and specialist have hitherto felt quite secure from the inroads of contract practices, but I venture to say that this security will not long exist if the present condition of affairs continues, inasmuch as many of the young graduates upon leaving colleges and hospitals are at present inclined to look towards the fraternities and corporations as a means of gaining their future livelihood on account of the example set them by many who have succeeded in rapidly attaining an immediate practice and income by means of some of the unfortunate modern methods.

What Effect has Contract Practice Upon the Physician?

The relations existing between physician and patient are distinctly different, in some respects, from those manifested in ordinary business life. While there is a similarity in all sociological interchanges the psychological element is far more important and plays a greater part between physician and patient than in the usual business transactions. In order to stimulate the physician to his utmost proficiency and to impress upon the mind of the patient a proper appreciation of the efforts put forth by the physician in his behalf, it is necessary that no barrier shall exist between the two to interfere with the proper reciprocal relations. This is a matter that merits our close attention in passing judgment upon any new method of administering medical aid and it is perfectly apparent that it did not escape the attention of our forebears in the practice of medicine, inasmuch as the ethical teachings have been such as would aid in the guidance of the unwary over new and stony paths. And this seems to be a most opportune time for careful scrutiny of this question of the relation between physician and patient because of the too apparent fact that great changes are taking place involving this important problem. Furthermore, let us keenly appreciate the fact that it devolves upon the powers that be in the New York State Medical Society to so guide our affairs in New York State that the rights of both physician and patient will be safeguarded under all forms of practice.

The physician occupies a rather unique station in life, being trusted or distrusted, loved or hated, cheated or lavished with money in accordance with the whims of the people, but as a general thing he is respected by all largely because of the reputation of the profession. It is expected that he will exemplify the highest essentials of character and his opportunity for good or ill is unquestionably above that of all others. He enters into the very life of his patient and is implicitly given the highest trust that one soul can bestow upon another—the very existence of his patient. This is the natural result of the devotion to high ideals of those who have preceded us, creating for us as a birthright the traditionary belief and reliance in the trustworthiness of the profession. This traditionary lore is the mystic chord that binds us to the ideals embodied in our hypocratic code and lures us on in the hope of possessing and maintaining the respect and confidence of the people. Considering the fact that our predecessors have enthroned us with a reputation we are proud of can we countenance in our honorable body any act or agreement that has other than a direct declaration of action or intention to all concerned? We cannot answer this question in the affirmative. It is impossible to postulate a code of morals permitting of such an answer. The profession has been very dogmatic, in some particulars, in outlining the conduct of its members. Among other proscriptions is that of advertising in the papers, for the very good reason that the proper reciprocal relation between the doctor and patient is not preserved by this means, establishing, as it does, a barrier between the two. The bond of sympathy and personal interest, essential to the best results, cannot be preserved between the doctor and patient when any intervening element eliminates the unreserved incentive of the physician to give out the very best that is in him. It is only too apparent that the effect of Contract Practice, in a general way, is essentially the same as the result achieved by the use of printer's ink. The fraternity on the one hand and the corporation on the other hand stand as sponsors for the continuance of the employment of the physician and as in the case of the use of printer's ink there is a marked diminution in the existence of the personal relation that is so important in the attainment of the best results. Furthermore, it is physically an impossibility to give any man, woman or child proper medical treatment for fifty cents or one dollar per year, the unsuspecting patient being sacrificed to the selfish interests of big business and lodge promoters. Can the mistaken physician who condones such a programme be otherwise than deleteriously affected thereby? Can we flatter ourselves that physicians are less susceptible to environmental influences than other mortals? Can we possibly believe that under such conditions our standards, scientific and ethical, will be elevated? Obviously there can be but one result from this mode of practice—deterioration of scientific methods and a blunting of the higher ideals through the disregard of human rights. It is not meant by any means to imply that all of the gentlemen engaged in contract work are guilty, consciously, of improper methods. It is probably true that the majority are doing the very best work they can under the circumstances. However, the system is such that those enmeshed in it are forced to do many things they would not countenance under other surroundings, and it is the system we must bear in mind principally in our endeavor to correct improprieties. Men are very largely at the mercy of their environments and become shuttlecocks when they least suspect it.

What Effect has Contract Practice Upon the Patient?

There is a vast deal of the philosophy of life to be considered from the standpoint of the patient in this drama we are endeavoring to study and analyze from its remotest angles in order that we may hold the correct attitude towards the public and the medical fraternity.

Let us hold up to close scrutiny the patient in order that we may see whether he is placed in the correct ways of living in order to secure the most that life has to offer. Almost sure to be neglected when sick, deprived of the best opportunities of receiving a perfect functional result if injured, deprived of his medico-legal rights if through bodily injury he finds it necessary to appear before a court of injustice to seek redress, deprived of his independence through the fact that his self-consciousness admonishes him that in his fifty cents or one dollar per year he is giving next to nothing for his medical services and shorn of that vast amount of the treasures of life that can come to one only through a self-respecting, independent manner of living, we have indeed a picture of a citizen of the land of the free and the home of the brave that is anything but enviable.

Who would dare to assert that the average case of sickness arising in contract practice is not more or less neglected? And is there one of us who could honestly stand up and say that he has not seen unnecessarily poor functional results arising from the rendition of services that owed their allegiance to some power outside of the individual patient? How many times have we seen it exemplified in court that the testimony of the witness goes to the one upon whom it depends for its remuneration?

Let us look at the patient from an entirely different angle from that we have been accustomed to view him in. Let us suppose that every man, woman and child in this great country were to be placed under the selfsame conditions of life that we are allowing a portion of our membership to introduce to a certain fragmentary part of the people. What would be the resultant effect upon the country at large?

If you rob a man of his independence in one way how much easier is it to repeat the robbery in another manner? I am impelled to say in all earnestness that if this method of dispensing medical aid were to be put into universal practice it would work incalculable harm from a sociological standpoint, as well as in other ways already enumerated, from the fact that it would put a premium upon dependence. Dependence in the individual is exceedingly destructive to all the essentials of good citizenship.

When we add to the foregoing the fact that the patient is menaced with the danger of unnecessary operations by reason of temptation on the part of the physician to recoup his meagre income through the surgical necessities of his lodge patients, and the division of fees, we have about completed the analysis from the standpoint of the patient.

What is the Duty of the New York State Medical Society.

It is indeed a peculiar situation that confronts us wherein the attitude of the collective whole is in direct antithesis to the personal wishes and ideas of 99 per cent of the individual members. In fact it is difficult to find one who would not vouchsafe the opinion that contract practice ought to be abolished. Each and every one is willing to lend his influence towards this end provided the rest of the membership of the county society will do likewise. Its abolition or a very radical change in the modus operandi seems a simple matter if only the willing forces can be concentrated upon the object in view. The gist of the matter is that in this great movement the many are whipped into line by the few who derive direct or indirect benefit, as is the case in all political games. When attempts have been made to get an agreement to change conditions the one or two per cent who have persisted in standing out have not been converted because the county societies have not had the power to discipline their refractory members. The conveyance of such power to the county societies is the great desideratum, preliminary to further action. It would seem, then, that it is the duty of the New York State Medical Society to enact such changes as will give the county societies the power to act as they see fit concerning those who refuse to acquiesce in a majority decision.

Those who have given this question their careful consideration seem almost unanimous in the opinion that unless the profession emerges from its present state of apathy on this important problem in economics and ethics incalculable harm will come to all concerned.

From the foregoing the following conclusions are drawn:

Contract practice is fundamentally wrong from a standpoint of medical economy, medical efficiency and medical ethics.

An effort should be made immediately by our State Society to greatly modify or abolish this mode of practice.

POST OPERATIVE VENTRAL HERNIA.*

A Study of the Hernias Following 500 Laparotomies.

By E. MacD. STANTON, M.D., F.A.C.S.,

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THE importance of the subject of post operative ventral hernia needs no emphasis. The operative technic at the beginning and at the close of each abdominal operation must be planned largely in accordance with the surgeon's ideas of how best to avoid this complication which so often threatens to mar the end result.

Hundreds of thousands, even millions, of laparotomies have been performed, and we should by this time be in possession of abundant and unquestionable data concerning every phase of the subject. It is a curious fact, however, that the literature on ventral hernias is almost wholly speculative in character. Many surgeons have theorized concerning technics calculated to prevent these hernias, but when we come to search for actual data to support their claims we find an almost barren field. As a matter of fact after reviewing the literature on the subject for the past thirty years I have been able to find only one exhaustive study based on actual data. In 1898, Abel[1] published a study of the hernias following five hundred and eighty-six gynecological operations. Some of the more important data presented by Abel is summarized in charts, No. III, IV, V and VI.

In the nearly twenty years which have elapsed since the publication of Abel's paper the results have undoubtedly been improved. The incisions themselves have been very largely standardized. The necessity for accurate layer suturing has become universally recognized. Drainage has been simplified, and the average size of the drains employed has been materially reduced. Wound infections in primarily clean cases is much less common now than formerly; also, considerable advance has been made in preventing the general infection of the wound when operating in the presence of pus, and lastly a greatly simplified post operative convalescence has largely eliminated meteorism and other causes of early excessive strains on the sutured wounds.

In order that we may still further improve our methods we must have some definite knowledge concerning the results which we have been obtaining in the recent past. Concerning this phase of the subject surgical literature leaves us almost entirely in the dark. For the purpose of obtaining some reliable data concerning the frequency of ventral hernias after incisions made and closed in accordance with modern practice I have analyzed the results obtained in the first five hundred laparotomies performed by myself, the late results of which, as regards hernias, are known.

Many of these patients have been traced for a period of from five to seven years, and all of them for more than one year following operation. The main facts concerning the distribution of hernias in these cases are shown in charts Nos. I and II. I have omitted giving percentages because from a purely statistical viewpoint the figures will be of value only when combined with and compared with other series. From a clinical viewpoint, however, the groups are sufficiently large to bring clearly before us the main outlines of the subject.

In the cases here reported the technic of making and closing the incisions was essentially constant for each group. Practically only four

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 16, 1916.

[1] Abel, G. Ueber Bauchnacht und Bauchnarbenbrüche. *Archiv für Gyn.*, 1898, Vol. LVI, 656-750.

types of incisions were used; the low median for pelvic work; the rectus incisions for appendix, gall bladder, stomach and most of the intestinal operations; the curved loin incision for kidney cases; and, a muscle-splitting, extra peritoneal incision for approach to the lower ureter.

Closure was by means of deep layer sutures of plain iodized catgut, reinforced by stay sutures of silkworm gut. The skin was closed with horse hair. The stay sutures were not removed until the thirteenth day. The great majority of patients were kept in bed two weeks. When drainage was employed the wound was closed down to the drain, the same as in clean cases. When operating in the presence of active infection even more than ordinary care was used to avoid too tight suturing.

In only one instance was a McBurney incision used for the removal of an appendix. I am fully aware of the arguments advanced in favor of the muscle-splitting incisions of the McBurney type and for the fascia-splitting incisions of the Pfannenstiel type. Actual data to support these contentions is, however, almost entirely lacking. Incisions of these types are as a rule inferior for purposes of exploration and operative attack. If they are to compete with the midline and rectus routes they must therefore show fewer hernias than the straight incisions.

During the past eleven years I have made it a point to examine the scars in all previously operated cases coming under my observation and there is no question but that as far as my own observations go McBurney incisions have shown a higher proportion of hernias than right rectus incisions made under similar circumstances.

Johnson[2] in a study of the hernias following two hundred appendectomies also calls attention to the disappointing late results following drained McBurney incisions. He believed that the often repeated muscular contractions cause a gradual absorbtion of the scar after which the muscle fibers are spread apart by the intra-abdominal forces tending to produce the hernia.

I do not wish to be understood as making any definite claims regarding the possible short comings of the McBurney incision, but I do wish to emphasize the fact that statements as to the superiority of this incision in drainage cases can only be accepted at par when they are accompanied by actual data tending to prove the assertions.

Summarized from different viewpoints the data collected during the study of five hundred post operative scars permits of a multitude of interesting observations. Within the time allowed me for this paper I can, however, discuss only a few of the more general facts.

Following the five hundred laparotomies there have developed twenty-four hernias. Four hundred and fifty-six of these operations were performed through midline or rectus incisions followed by twenty-one hernias.

Each of these twenty-one hernias developed as the direct result of an insufficiently firm union of the fascia layers lying anterior and posterior to the rectus muscles. After these incisions practically the entire problem of a firm scar centers in the stability of the union obtained between the sutured edges of these fascia layers.

Just here I wish to emphasize a point in anatomy and technic which I know is frequently overlooked and which I am convinced is of real importance.

Above the semilunar fold of Douglas the posterior sheath is composed of the entire fascia of the transversalis and the posterior half of the fascia of the internal oblique. Below the semilunar fold all of the fascia of the internal oblique and a portion of the fascia of the transversalis pass anterior to the rectus. The older anatomies infer, or state, that all of the fascia of the transversalis passes anterior to the rectus in its lower fourth. This is an error which has been corrected in some of the later anatomies. The posterior sheath even in the lower fourth does contain a fascia layer composed chiefly of fibers of the transversalis. Below as well as above the fold of Douglas this fascia and the peritoneum together form the first line of defense against hernias. The peritoneum alone has little or no strength. If the fascia is not properly united the overlying muscle yields leaving only the last line of defense—the fascia of the anterior sheath.

Usually the posterior sheath proper is included in the suture which closes the peritoneum, but unless the presence of this fascia is constantly born in mind it will very frequently be missed. Between it and the peritoneum is a layer of areolar tissue which often contains a half-inch or more of fat. Even in thin people the fascia is often found deeply retracted at the close of the operation. When there is considerable subperitoneal fat it is often better to use a second continuous suture for this fascia.

INFECTION.

Infection has long been recognized as the chief cause of a weak post operative scar. In my series two hundred and sixty rectus and midline incisions in originally clean cases were followed by only three hernias. One of these developed suddenly several months post operation after apparently perfect primary union in a low midline incision; one followed a Caesarian section in which the wound broke down because of the foul smelling suppuration caused by a proteus-like organism; and one following a low right rectus incision in a clean case is absolutely unique in my experience and deserves special mention. The skin and stay stitches were removed at the end of twelve days. The wound reopened immediately. At this time there was no evidence of infection and practically no evidence of repair. Four months later the wound was still open without granulation tissue sufficient to hide the outlines of the muscle fibers. It finally closed some ten months after operation. In spite of exhaustive search for some constitutional cause I am unable to account for the almost total absence of the processes of repair as observed in this case.

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[2] Johnson, V. H. *Jour. A. M. A.*, 1898, XXXI, 402.

One hundred and eighty-six rectus and midline incisions for acute intra-abdominal infections and subacute and chronic conditions requiring drainage resulted in eighteen hernias.

Frank suppuration along the sutured fascia layers was unquestionably the cause of fourteen of the hernias in my total series. In eight of the remaining ten cases some degree of infection was present and probably in part at least responsible for the result. Only one hernia developed in a wound healing by absolute first intention.

DRAINAGE.

It is necessary to employ drainage of one kind or another after a very considerable proportion of abdominal operations. The role these drains play in preparing the way for the subsequent development of hernias is a question of great practical importance. In the text-books drainage is often given as one of the chief causes. Thus one advocate [3] of vaginal drainage in pelvic cases stated a few years ago that ventral hernias would probably result in fifty per cent of wounds drained supra-pubicaly. Other authors are more conservative but I believe that the part played by drains in the causation of these hernias is usually overestimated, at least, in the case of rectus and midline incisions.

The use of drainage means that that portion of the incision occupied by the drain must close by secondary intention. All other factors of healing in our wounds being equal the drained wound has a weak spot left at the site of the drainage. Again other factors of healing being equal the importance of this weak area as a factor in the subsequent yielding of the incision will bear a direct relationship to the diameter of the drainage employed. This is, however, not the only factor tending to produce a weak union in drained incisions. My observations seem to show that unless the drainage employed be too large it is actually a relatively minor factor in the causation of hernias. Provided good union is obtained in the sutured portions of rectus and midline incisions a drain up to 3 c.m. in diameter at one angle of the wound does not materially increase the danger of hernia. In fact if the presence of a drain at one angle serves to protect the remainder of the incision from active infection as it undoubtedly often does I believe that the drain may be looked upon as a means of preventing rather than causing subsequent hernia in the scar.

In my series there were one hundred and eighty midline and rectus incisions in which drainage was employed resulting in fifteen hernias. In only three of these, however, could the development of the hernia be traced to the site of the original drainage. In twelve it was apparently clear that the hernias first developed in the sutured portion of the incisions. A reference to the hospital records in these cases shows ten of the twelve were complicated by well marked suppuration extending along the fascia layers.

The point I wish to emphasize in regard to the use of drainage is that in rectus and midline incisions the character of union obtained in the sutured portions of the incisions is the really determining factor for or against subsequent hernia. I do not believe that secondary stab wounds for the purpose of introducing drains are justifiable unless the operator is sure that his main incision stands as good or a better chance of union without suppuration in the absence of drainage as it would with the drain at one angle of the wound.

The older writers placed great stress upon the importance of early excessive strains on the incision as a cause of ventral hernia. Wolff [4] as late as 1902, ascribes this as the chief cause. I believe that with proper suturing and post operative care this cause can be very largely eliminated. Coughing and the resulting strains upon the incision may have been a cause of the spread of the infection along the suture lines in one or two of our wounds that broke down.

Meteorism has been with me one of the rarest of post operative complications and in no case can I ascribe a hernia chiefly to this cause.

Nerve Injuries. In my own cases there has been no example of rectus paralysis due to interfering with the nerve supply. I have, however, observed extreme instances of this deformity in other patients coming under observation. always following incisions made along the outer border of the rectus or through the linea semilunaries.

In conclusion let me again emphasize the fact that in rectus and midline, and, I believe, also in kidney incisions it is the fascia which must be relied upon to give permanent security to the scar. The technic which gives the best union of the divided fascia layers will give the fewest hernias.

The fascia of the posterior sheath is the first line of defense. Suturing the peritoneum does not necessarily mean that the fascia is also sutured.

In the case of rectus and midline incisions unless excessively large drains are employed the prognosis as regards subsequent hernia after the use of drainage will depend upon the character of fascia union obtained in the sutured portion of the wound.

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[3] Watkins, in Bovee's Practice of Gynecology, 1906, page 656.

[4] Wolff: *Cent. f. Chir.*, XXIX, 1289

We are greatly in need of accurate data concerning the late results after drained McBurney incisions.

TABLE I.

Ventral Hernias After 500 Laparotomies.

Type of Incision	No. of Laps	Hernias
Low median—not drained	135	2
Low median—drained	52	5
Low rectus—clean cases	64	1
Low rectus — acute lesions — not drained	67	3
Low rectus—Suppurative App.—drained	63	8
High rectus—gall bladder	61	0
High rectus—not drained	10	0
High rectus—for acute suppurating perit	4	2
Kidney—lumbar incisions	39	0
Lower ureter muscle splitting incisions	3	2
Stab wound for drainage (muscle splitting)	1	1
McBurney incision—clean case	1	0
Total	500	24

TABLE II.

Causes of Hernias After 500 Laparotomies.

Frank suppuration along sutured fascia layers	14
Scar yielding after drainage without frank suppuration	4
Wound packed open	1
Non-union of trophic origin	1
Sudden yielding after apparently normal healing	1
Gradual yielding after muscle splitting incisions	3
Total	24

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Discussion.

Dr. Samuel Lloyd, New York City: There are one or two points that were brought out after I came in that are important. First, with respect to the relation of McBurney's to the right rectus incision. I think that those of us who have had considerable experience in the question of different incisions in the abdomen will recognize the fact that he emphasized, namely, that the hernia are more frequent in the old McBurney splitting operation than they are with the operations through the rectus.

There is one other matter that should be made clear. A good many of the hernia that I have seen in the clean cases have occurred either at the upper or the lower end of the incision and I have been impressed in watching men work, with the frequency with which they begin their suture, say, half an inch below the edge of the incision, leaving there, perhaps, half an inch or three-quarters of an inch between the end of the incision and the point where the first suture is inserted and stopping again at the same distance from the other end.

We get two types of hernia if we leave an opening in the posterior sheath and in the peritoneum, the one that comes all the way through and gives us a definite palpable hernia and the other in which we have a slight protrusion, giving pain only at the time that the protrusion occurs, which bothers the patient, but cannot be seen or felt, and which is not explainable. These cases are slight protrusions of gut through a very small opening, without any definite tumor, simply giving the symptom of strangulation at the moment.

I think these are all due to incomplete closures of the wound and that it is important in all cases where we are closing abdominal wounds, not only to suture the periteneum beyond the point of the upper incision but to get the posterior sheath with it at the same time. That, I think will reduce the number of these hernia very materially.

Dr. Howard Lilienthal, New York City: I was extremely interested and impressed with Dr. Stanton's paper. I have always believed that the disadvantages of the McBurney incision outweighed its advantages.

I agree with him completely as to his conclusions, and what I am going to speak about now is something new and important in regard to the incisions in the upper abdomen.

At the recent meeting of the American Surgical Association, Moschcowitz of New York read a paper on this subject of the transverse incision for operations in the upper abdomen and I think it was one of the most illuminating papers of the session. I had the honor of discussing the paper having had considerable experience with the method.

About five years ago Moschcowitz asked me to try it and I said, "I will never try it. I don't approve of it." Then one day he showed me a patient upon whom he had operated three times through the same incision and at the last operation had operated in the presence of an infection and the wound had to be sewed up as quickly as possible by through-and-through sutures. I saw him one year afterwards and there was not the slightest sign of hernia. I was convinced and it is just a little over a year since I began using this incision for all upper abdominal work. I have been delighted with it.

DR. STANTON: In conclusion I have only a word to say and that is that I only hoped somebody would criticise me in regard to what I said regarding the McBurney incision. My attention was first called to this subject about ten years ago when I had occasion to review the anatomical conditions found at operation in some sixty-two cases of hernia. At that clinic there were practically no McBurney incisions made and yet a little over half of these cases coming to us for operation for hernia were following incisions which were originally intended as McBurney incisions. Since then I have tried to keep track of the post-operative results in McBurney incisions. It seems to me that although they give a splendid scar for the first few months, Johnson was probably right when he said that their scars usually give gradually. I was somewhat afraid to make that statement here and I wrote to some friends whom I knew used this incision a good deal. It was rather interesting to get their answers. Some of them never had hernias and some of them expected hernias, and altogether I was pretty sure that none of them knew just what did happen.

THE EDUCATION OF HEALTH OFFICERS.*

By FRANK OVERTON, A.M., M.D.,

PATCHOGUE, N. Y.

IS the ordinary physician qualified to be a health officer? The answer given by most boards of health is that every physician has sufficient knowledge to qualify as a health officer, and that the most expert act that a health officer should do is to look at a case of scarlet fever and tack a quarantine card on the door of the patient's house. The answer given by the New York State Department of Health is that few doctors are qualified to be health officers; that the best health officers themselves realize their lack of knowledge; and that every health officer requires special training in the elements of public health work. The soundness of the attitude of the State Department of Health is recognized by all the leading sanitarians, by the majority of the health officers themselves, and by an increasing number of members of boards of health.

A health officer is a specialist in public health work. He is employed by the municipality to be the medical advisor of the public in matters which may affect public health. There is a universal agreement that a health officer must prevent the spread of contagious diseases by the control of known cases. The majority of people agree that a health officer should have control over those sanitary conditions for which the public, as contrasted with individuals, is responsible. An example of the class of duties for which the public is responsible is the inspection and control of milk supplies.

A minority, which will soon become a majority, of people believe that the scope of the work of a health officer should be enlarged to include the control of conditions which render individuals susceptible to sickness. An example of this class of duties is the physical examination of school children, and the correction of their defects. Another example is the detection of cases of tuberculosis in their incipiency and the promotion of means for their cure before the victims are incapacitated for work.

The former conception of the duty of a health officer was that he should act only on the receipt of a report of an actual case of contagious disease, or of a complaint from a citizen who has discovered an unsanitary condition. This is still the attitude of many members of local boards of health and of many physicians. If these two duties embraced all the duties of a health officer, then it is true that any physician is qualified to be a health officer. But the present conception of the duties of a health officer is that he shall seek for unrecognized cases of contagious diseases that physicians do not see, and that he shall not wait for complaints of citizens, but shall look for unsanitary conditions and be a leader, instead of a follower, in their suppression and prevention. This conception of duty leads a health officer to ignore many conditions which were formerly considered to be dangerous and to insist on stringent measures for the control of conditions which seem harmless to most persons. For example, a health officer may properly ignore an unsightly ash heap and yet enforce the isolation of a rosy faced carrier of diphtheria germs. The new standards of public health require a health officer to have expert knowledge and to be able to justify his actions when the ordinary signs of danger are obscure to other physicians and to laymen. They require the health officer to know what precedents other health officers are establishing, and what are the decisions of the courts regarding the newer activities of the health department. The ordinary physician has little knowledge in these matters, but self interest leads him to avoid all responsibility and experience with them.

A rural health officer is likely to meet all the various problems that confront a city health officer, the principal difference being in the number of the individual cases that occur in a year. These problems may be classified under three heads; 1, those depending largely on a laboratory examination, such as communicable diseases, water supplies, sewage disposal, and milk supplies; 2, those which depend on special knowledge not requiring a laboratory examination, such as nuisances, the extermination of flies and mosquitoes, child hygiene, and industrial hygiene; and 3, problems of administration, law, and public education. Everyone agrees that a city health officer must have special training and knowledge along all these fundamental lines of public health work, although he can secure expert assistance at a moment's notice. It is still more important that a rural health officer should have training and knowledge in order that he may at least recognize a problem when it confronts him. If he recognizes it and reports it to the State Department of Health, he can secure all the assistance that he needs, but the State Department of Health has a right to require every local health officer to be able to recognize the ordinary public health problems as they arise, even if he cannot solve them. It is the intention of the State Department of Health to bring rural health work up to the city standards. The local health officer is the sole representative of the State Department in his local community, and is likely to remain so. The knowledge required of a health officer must be increased in the same proportion that his duties and responsibilities are increased.

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Practising physicians are not trained in public health problems. Those who graduated more than ten years ago received but little instruction in laboratory methods, and medical schools at present give only a meager amount of instruction in sewage disposal and milk inspection, and none at all in methods of public health administration and the education of the public. The older practitioners now lack knowledge and the younger ones lack experience. The physician who has a large practice is either too busy to keep up with the times in public health methods, or finds it to his financial interest to ignore public health problems in which the selfish interests of his patients may conflict with those of the public. Few practising physicians could pass an examination in the elementary principles of public health work.

The New York State Department of Health has recognized the need of special training by requiring that every health officer appointed after November 1, 1916, shall have taken a public health course that is approved by the Commissioner of Health. The New York University was the first to offer instruction in public health work. It gave a course during the summer of 1915, at which sixteen persons were enrolled, of whom only four were health officers of New York State. Yet the experiment proved that such a course was wise and practicable, and in October, 1915, a correspondence course in home reading was begun in which 200 health officers are now enrolled. The correspondence course consists in selected readings from standard works. A syllabus to guide the reading is sent to each student, and a set of examination questions is given at the end of each subject. Each student will spend a week at the college to witness practical demonstrations of the work and to take a final examination.

Syracuse University has also begun a course in which twenty-five health officers are enrolled. They meet at the University on two days of the week for lectures and demonstrations. They are also assigned a course in reading.

What are some of the results that may be expected from the courses? No health officer will be made into a bacteriologist, but every health officer who takes the course will be expected to know how to make use of the facilities of the State Laboratory. He will know when and how to take cultures, how to interpret the reports, and how to apply them to particular cases. He will know when and how to give antitoxins and serums. He will understand the Widal reaction, the Schick test, and the use of typhoid vaccination. He will know the nature of each of the communicable diseases and their basic diagnostic signs. He will be grounded on the principles of epidemiology and the methods of tracing epidemics to their sources.

It is expected that a few health officers who have mechanical and surgical ability will learn to do intubations and spinal punctures, and to give intravenous and intraspinal injections and thus become centers from whom assistance can be obtained quickly in emergencies.

Raising the educational standard of health officers will react on every practising physician. Departments of health require physicians to make accurate diagnosis in over twenty communicable diseases. The investigation of a competent health officer or laboratory worker reveals the nature of a disease in the same manner that a surgical operation or an autopsy reveals a diagnosis. The health department is the only authoritative power that compels practising physicians to make a correct diagnosis of any condition. A trained health officer will be a center of influence for raising the standard of the whole medical profession. This heightened standard in turn will react on the health officer as physicians demand that he qualify himself to be the competent expert which his position would indicate him to be. This mutual reaction of the health officer and his medical colleagues will constitute a beneficent circle of influence which will profit the public as well as physicians.

There are about 1,200 health officers in New York State, and 200 are taking public health courses. There has been no compulsion that the health officers should take the work, for the terms of nearly all of them expire this spring and their reappointments do not depend on their taking the courses. New York State is to be congratulated on the large number of health officers who are preparing themselves for efficient service in public health.

ROENTGENOGRAPHY OF THE MASTOID.*

By **FREDERICK M. LAW, M.D.,**
NEW YORK CITY.

ROENTGENOGRAPHIC examination of the mastoid is becoming more and more of a routine examination at the Manhattan Eye, Ear and Throat Hospital in New York, and the value appreciated to a much greater extent than ever before.

I sometimes think that the examination of the mastoid is more satisfactory in the hospital than in the office, because there is opportunity for a consultation between the Roentgenologist and the surgeon. This is a most important point.

A diagnosis can sometimes be made from the plate alone, but very seldom. There are so many conditions which influence the interpretation of the plates that the Roentgenologist must be in possession of the history, clinical and laboratory findings before a definite conclusion as to the results of the X-ray examination can be reached.

The X-ray is simply one of the valuable aids in diagnosis, and must be used as such. Not as a picture from which a positive diagnosis is to be made, but as one of the links in the chain of evidence from all the means of diagnosis which observation and laboratory methods will give. Many surgeons consider themselves capable of interpreting their own plates. This is possible with some who are accustomed to working with a certain Roentgenologist and become familiar with his technique and the many conditions which influence the character of the shadows on the plate.

It must not be forgotten that the X-ray is not a photograph, but simply a registration of shadows cast on the plate by the X-rays passing through structures of varying densities, and there are many factors which influence the appearance of these shadows, factors which usually clear up during a consultation between the Roentgenologist and the surgeon.

The X-ray examination will show:

The size and structure of the mastoid cells, the condition of the cellular partitions, the presence or abscence of sclerosis, cholesteotoma, and the presence or absence of pus of varying densities. The size and approximate position of the sinus and emissary vein.

In the normal mastoid the plate will show the honeycombed appearance of the cells and their bony walls, the outline showing clear and sharp, the lateral sinus showing as a thin white line which represents the anterior wall, the emissary vein showing well in the majority of cases.

In the diseased mastoid, the cells are obliterated by pus or granulations, and the cells show in proportion to the density of the material in the cells.

If there is bone destruction, the area will show as a dark spot in the midst of the white blur, due to the lessening of density at this spot. Sclerosis shows as a dense white area, without bone partitions. The sclerosed area, being hard bone, throws a shadow stimulating the structure of the bone of the surrounding skull. Many times no line of demarkation can be seen.

Cholesteotoma will show as a dark area in this dense structure. The diagnosis of mastoid involvement is made by comparison with the appearance of the plate of the normal side. In the event of both sides being involved, the diagnosis is a difficult one, and dependence must be placed on the clinical evidence and the knowledge of what a normal ear of the corresponding type would show.

One great field of usefulness in Roentgenography of the mastoid is in convincing a patient of the necessity for operation. The case may in the judgment of the surgeon be an operable one to preserve hearing and to stop the discharge, but owing to apparent lack of symptoms or discomfort the patient refuses. The X-rays, by giving to the patient visual evidence of the difference between the appearance of the diseased side and the normal side, or in the involvement of both sides, the appearance of a normal mastoid of the same type, will often convince him of the necessity for surgical interference.

In the case of mastoid tenderness complicating a furunculosis in the canal, the X-ray reveals the condition of the mastoid cells and helps to clear up the diagnosis.

The type of structure of the mastoid process often influences the discharge of pus. A mastoid consisting of small cells in and behind the antrum is one which is liable to become clogged, drainage is interfered with, and the discharge stops until pressure ensues and the discharge reappears, while one of a large cell type is more liable to remain open and delay in operating is less dangerous. The case can be watched and if advisable followed by successive plates illustrating the progress of the condition.

There is the case which has been operated but does not clear up as it should. The X-ray examination will determine the extent and appearance of the operated area. If there are any cells remaining they will show in the plate and prove the completeness of the operation.

There are many points of difficulty in the interpretation of the plates which I have not time to describe, but which will disappear during the consultation with the Roentgenologist.

Let me emphasize this point, consult. If this is done, you will derive more satisfaction from the X-ray examination and its value appreciated much more than if you simply read the report and draw your own conclusions.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

Medical Society of the State of New York.

NOTES BY THE SECRETARY.

A Message to the Members and County Society Officers.

One of the principal reasons for maintaining an official Journal is to provide a medium of communication between the State Society and its component County Societies. I propose to utilize this feature by communicating from time to time with the County Societies upon questions which may seem to be of importance to them or to the State Society.

One of the prime objects of the State Society may be well stated in the words of the Constitution of the United States: "To provide for the common defense and promote the general welfare." This, in general terms, is the most important object of the State Medical Society. It is one of those enumerated in Article I of the Constitution, in which the purposes of the Society are set forth, and is stated as follows: "To guard and foster the material interests of its members and to protect them against imposition."

These objects can be most fully attained by a large and representative membership. The importance of increased membership can hardly be overstated. The present issue of the Directory contains the names of 14,224 physicians in New York State. Of this number, 8,367 are members of the State Society, leaving 5,857 not in affiliation. Among these physicians there are a few who would not be desirable members, but there is a very large number who would be desirable and helpful and should be brought into the professional fold. Each new member adds to the influence of the Society and renders it more efficient for the public good. When we appear before legislative committees and public bodies, it carries an enormous weight if it is known that we represent a large percentage of the medical profession of the state. Eight thousand members is an imposing body. Nine thousand or ten thousand would be more imposing and would represent a much larger percentage of the profession.

Medical societies have been likened by Osler to professional cement that binds medical men together into a unified body. Certain it is that they are the most potent of all agencies in bringing physicians into touch with each other, in fostering fraternal relations, and in rendering the medical profession an influential force in the state. Today we are an efficient and forceful army; without the State Medical Society we should be a powerless, defenseless mob.

It is the wish of President Tinker to add largely to the membership this year. His desire to secure at least one thousand new members ought to be seconded by every member and by every County Society. No other movement could add more to the general efficiency of our organization.

Increase in membership rests wholly with the County Societies. It is for them to add to their membership and thus add to the general total. The State Society can do nothing in this direction. An intensive effort this year may easily produce very large and very valuable results. It is to be hoped that the officers of each County Society will take this matter up as a definite campaign this year.

We should not forget that the State and County Societies are professional bodies, organized for mutual benefit and for the public good. They are not clubs or social fraternities designed for the entertainment of their members. In a club, the clubability or the social qualities of the applicant may be properly considered. That is not true of the applicant for membership in the County Society. Every physician licensed by the state to practice medicine is eligible for membership, provided only that he does honest and reputable practice and is a respectable and law-abiding citizen. Personal dislikes should not be permitted to interfere with his admission.

The By-Laws say specifically that "full and ample opportunity shall be given to every reputable physician to become a member of the society in the county in which he resides." The great law of 1806, under which the State Society and all the County Societies are chartered, made them integral parts of the state government. It was so radical, in fact, that the courts decided that all legally qualified practitioners were "*ipso facto* members of the medical corporation." This has been modified but the fundamental principles of the law of 1806 remain unchanged. The County Society is a public society in the fullest sense of the term, and every reputable physician of the county ought to be a member.

Sex should not be permitted to bar any legal practitioner. Women physicians are among our most helpful and loyal members and their presence is to be strongly encouraged.

I wish to enter a plea for the young physician. He should be brought into the County Society as early as possible. Conditions have materially changed in the last quarter century. In the earlier days the young physician studied medicine in the office of a practitioner. He became imbued with professional ideals and ethics and was inspired with a regard for the profession which oftentimes kept him in the straight and narrow professional path. Today the young physician goes direct from the high school or college into the medical school and from there to the hospital. He is brought but little into personal contact with older physicians and knows little of the obligations and duties of private practice, and sometimes seems lacking in ethical standards. This is one point in which modern methods of education are inferior to the older methods.

It is the more important, therefore, for the Societies to bring these young men into affiliation, and for the elder physicians to take them under their care. It has become an added duty of the Societies. The young doctor of today has much to learn that the young doctor of fifty years ago knew at the outset of his professional life. Many of his errors anl lapses from ethical ways are due to lack of knowledge, pure and simple. I would, therefore, particularly urge the Societies to gather into the fold every young practitioner, if he be a graduate of a reputable college and appears to be a young man of honor and good intention.

It is sincerely to be hoped that the efforts of the President will be taken up enthusiastically by every County Society in the state. We will soon communicate with you personally and lay out a scheme of campaign which is sure to bring results if he has loyal support.

F. M. C.

County Societies

MEDICAL SOCIETY OF THE COUNTY OF WASHINGTON.

Annual Meeting, Hudson Falls, October 3, 1916.

The meeting was called to order at 10.30. The following members were present: Drs. Heenan, Stillman, Lewis, Paris, Byrnes, Park, Banker, Pashley, Wilde, Oatman, Millington, Sumner, Davies, Tenney, McKenzie, Budlong, Munson, Lee, LaGrange, Heath, McSorley, Casey. There were also present the following visitors: Dr. Charles S. Caverly of Rutland, Vt.; Dr. Orla Park, Hudson Falls; Dr. M. Maslon and Dr. F. G. Fielding, Glens Falls; Dr. J. G. Russell, Salem; Dr. Charles S. Prest, Sanitary Supervisor, Waterford.

Drs. J. T. Park, G. M. Stillman, and R. C. Paris, appointed by the President as a Committee on Nominations reported the following: For President, W. L. Munson, Granville; Vice-President, Z. V. D. Orton, Salem; Secretary, S. J. Banker, Fort Edward; Treasurer, R.

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s, Hudson Falls; Board of Censors, J. T. Park, . Stillman, C. W. Sumner.

On motion duly seconded and carried they were declared elected.

The President appointed as the Committee on Legislaton, W. B. Melick, R. C. Davies and R. H. Lee.

Robert E. Plunket of Whitehall was elected a member.

The report of the Treasurer was accepted.

The Secretary presented his report and also read a letter from Dr. J. B. Ransom, President of the Fourth District Branch. The report was accepted.

SCIENTIFIC PROGRAM.

Dr. Byrnes read a paper on "Pertussis Vaccine" recommending it as a prophylactic and for treatment.

The President's Address on the "Relations of the Health Officer to the General Practitioner. A vote of thanks was tendered the President by the Society for his paper.

In the absence of Dr. Shaw, Dr. Caverly gave a talk on "Poliomyelitis," at the end of which the Society tendered him a vote of thanks.

Dr. Maslon gave a talk on the laboratory side of "Poliomyelitis."

A general discussion followed the papers of Drs. Caverly and Maslon.

Dr. Sumner moved that the charge for fraternal insurance examinations be changed to $2.00. Adopted.

The meeting adjourned to meet in Cambridge for the semi-annual meeting.

MEDICAL SOCIETY OF THE COUNTY OF YATES.

The following resolution was passed by the Society at the regular meeting held October 3rd, 1916:

The Medical Society of the County of Yates believes that the malpractice defense is one of the greatest benefits derived from membership in the State Socicty and that maintainance of that defense should be continued in the most efficient manner possible, and further

The Medical Society of the County of Yates believes that the funds at present provided for that defense, which we are informed is about eighty-seven cents per member, is inadequate to continue the most efficient administration of that department and that an increase of at least one dollar per year should be made in the dues of each members of the State Society in order that additional counsel may be employed and trained in this very special form of legal practice and that sufficient assistants be furnished to make the work more effective.

The above resolution in its two sections is respectfully referred to the Council of the State Society for its consideration.

MEDICAL SOCIETY COUNTY OF ULSTER.

SPECIAL MEETING, KINGSTON, N. Y.

Monday, August 14, 1916.

The meeting was called to order in the Common Council Chamber at 8 P. M. About fifty members being present.

SCIENTIFIC PROGRAM.

"Infantile Paralysis," H. L. K. Shaw, M.D., Director Division of Child Hygiene, New York State Department of Health.

A general discussion followed which was opened by Raymond Sanderson, M.D. of Kingston, who spoke particularly of the symptomatology and pathology of "Infantile Paralysis."

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us as a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

UNIVERSAL MILITARY EDUCATION AND SERVICE, THE SWISS SYSTEM FOR UNITED STATES, by LUCIEN HOWE, Fellow of the Royal Society of Medicine, Member of the Royal College of Surgeons, Professor Emeritus of Ophthalmology. G. P. Putnam's Sons, New York and London. Knickerbocker Press, 1916.

CARE AND FEEDING OF INFANTS AND CHILDREN. A Text-Book for Trained Nurses, by WALTER REEVE RAMSEY, M.D., Associate Professor Diseases of Children, University Minnesota, Associate Visiting Physician to the University Hospital, Medical Director of St. Paul Bay Welfare Association. Including suggestions on nursing by MARGARET B. LETTICE, Supervising Nurse of the Baby Welfare Association, St. Paul, Minn., and NANN GROSSMAN, Nurse in Charge of Children's Department, University Hospital, Minn. 123 illustrations. Philadelphia and London. J. B. Lippincott Co. Price, $2.00.

THE PROBLEMS OF PHYSIOLOGICAL AND PATHOLOGICAL CHEMISTRY OF METABOLISM. For Students, Physicians, Biologists and Chemists, by DR. OTTO VON FURTH, Professor Extraordinary of Applied Medical Chemistry in the University of Vienna. Authorized translation by ALLEN J. SMITH, Professor of Pathology and of Comparative Pathology in the University of Pennsylvania. Philadelphia and London. J. B. Lippincott Co., 1916. Price, $6.00

A PRACTICAL TREATISE ON DISORDERS OF THE SEXUAL FUNCTION IN THE MALE AND FEMALE, by MAX HUHNER, M.D., Chief of Clinic, Genito-Urinary Department, Mt. Sinai Hosp. Disp., Formerly Attending Genito-Urinary Surgeon, Bellevue Hosp. O.P.D. and Assistant Gynecologist, Mt. Sinai Hosp. Disp., N. Y. City. Member American Urological Association, American Medical Association. Philadelphia, F. A. Davis Co., English Depot, Stanley Phillips, London, 1916. Price, $3.00.

THE HEALTHY GIRL, by MRS. JOSEPH CUNNING, M.B. (Lon.), Hon. Med. Director to the Open Air School in the London Botanical Gardens and A. CAMPBELL, B.A. Lecturer in Biology and Hygiene Technical Institution, Swindon. London, Henry Frowde, Hodder & Stoughton, Oxford Univ. Press, Warwick Sq., E.C., and 35 West 32nd Street, New York City. Price, $1.75.

SYPHILIS AND THE NERVOUS SYSTEM FOR PRACTITIONERS, NEUROLOGISTS and SYPHILOLOGISTS, by Dr. MAX NONNE, Chief of the Nervous Dept. in the General Hospital, Hamburg, Eppendorf. Authorized translation from the second revised and enlarged German edition by CHARLES R. BALL, B.A., M.D., Chief of the Nervous and Mental Department, St. Paul Free Dispensary, Neurologist, St. Joseph Hospital, Bethesda Hospital, Mounds Park Hospital, State Home Crippled, Deformed Children. 98 illustrations in text. Second American edition revised. Philadelphia and London, J. B. Lippincott & Co., 1916. Price, $4.00.

PHYSIOLOGY FOR NURSES, by W. B. DRUMMOND, M.B., C.M., F.R.C.P. Edin. Examiner in Biology, Royal College of Physicians. Late Lecturer in Hygiene, Edinburgh Provincial Training College, Author of "The Child, His Nature and Nurture," "An Introduction to Child Study," "School Hygiene," etc., with 81 illustrations. New York, Longmans, Green & Co., London, Edward Arnold, 1916. Price, $1.00 net.

MEDICAL AND SURGICAL REPORTS OF THE EPISCOPAL HOSPITAL OF THE PROTESTANT EPISCOPAL CHURCH IN PHILADELPHIA. Vol III, Philadelphia Press of William J. Dornan, 1915.

The American Year-Book of Anesthesia and Analgesia, F. H. McMechan, A.M., M.D., Editor, 1915. Surgery Publishing Co., 92 William Street, New York City. Price, $4.00.

Blood-Pressure: Its Clinical Applications. Second Edition, Revised and Enlarged. By George W. Norris, A.B., M.D., Assistant Professor of Medicine in the University of Pennsylvania, Visiting Physician to the Pennsylvania Hospital, Assistant Visiting Physican to the University Hospital, Fellow of the College of Physicians of Philadelphia. Octavo, 424 pages, with 102 engravings and 1 colored plate. Cloth, $3.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1916.

A Text-Book of Fractures and Dislocations, with Special Reference to Their Pathology, Diagnosis and Treatment. By Kellogg Speed, S.B., M.D., F.A.C.S., Associate in Surgery, Northwestern University Medical School, Associate Surgeon, Mercy Hospital, Attending Surgeon, Cook County and Provident Hospital, Chicago, Ill. Octavo, 888 pages, with 656 engravings. Cloth, $6.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1916.

Rules for Recovery from Pulmonary Tuberculosis. A Layman's Handbook of Treatment. By Lawrason Brown, M.D. Second Edition thoroughly revised. 12mo., 188 pp. Lea & Febiger, Publishers, Philadelphia and New York, 1916.

Principles of Diagnosis and Treatment in Heart Affections. By Sir James Mackenzie, M.D., F.R.S., F.R.C.P., LL.D., Ab. and Ed., F.R., C.P.I., (Hon.) Physician to the London Hospital (in charge of the cardiac department) Consulting Physician to the Victoria Hospital, Burnley. London, Henry Frowde, Hodder & Stoughton, Oxford University Press. Warwick Square, E. C., also 35 West 32nd Street, New York City. 1916. Price, $2.50.

The Control of Hunger in Health and Disease. By Julius Carlson, The University of Chicago Press, Chicago, Ill. Price, $2.00 net.

International Clinics. A quarterly of illustrated clinical lectures and especially prepared original articles on Medicine, Surgery, Neurology, Pediatrics, Gynecology, Orthopedics, etc. Edited by Henry W. Cattell, A.M., M.D., Phila., with the collaboration of John A. Witherspoon, M.D., Frank Billings, M.D., Chas. H. Mayo, M.D., Sir Wm. Olser, M.D., etc. Vol III, 26th Series, 1916. Philadelphia and London, J. B. Lippincott Co.

Book Reviews

Medical Gynecology. By S. Wyllis Bandler, M.D., Adjunct Professor of Diseases of Women, New York Post-Graduate Medical School and Hospital. Third thoroughly revised edition. Octavo of 790 pages, with 150 original illustrations. Philadelphia and London. W. B. Saunders Company, 1914. Cloth, $5.00 net; half morocco, $6.50 net.

Bandler has incorporated in a comprehensive volume of 790 octavo pages and 150 illustrations, a review of medical gynecology. Operative measures are advised only in those cases that are not amenable to medical measures.

A study of the symptoms, in conjunction with a good understanding of the bi-manual and microscopic findings, together with the general physical and nervous state of the woman, constitutes, in a general way, the scheme of arriving at a definite conclusion—*i. e.*, a diagnosis.

There are 60 pages devoted to a general discussion of the internal secretions and their bearing on the general health and welfare of the woman. Appropriate remedial measures, in so far as they are known, are in each instance given in detail. There is, as yet, no accurate way of determining what "gland" or how much to give in any given condition.

In the section dealing with amenorrhœa, dysmenorrhœa and excessive uterine bleeding all the newer prophylactic medicinal measures are thoroughly given. The relationship of these conditions to the disturbed internal secretions is a phase of this subject that deserves particular mention. Many prescriptions containing those drugs found by the author to be most effective in these conditions are given.

The subject of sterility is considered from the standpoint of etiology and treatment—particularly local and medical. Potency in the husband is insisted upon before treatment of the wife is instituted. Operative treatment is often unnecessary and just as often unsuccessful. A guarded prognosis is advised in every case of sterility, no matter what form of treatment is chosen.

The associated nervous conditions met with in the treatment of gynecological cases are well reviewed. Numerous theories are given as to the causation of these associated nervous and mental states. The treatment of these conditions must be conducted with the help of a competent neurologist.

The inflammatory diseases, as they occur in gynecology, make up the most important group of affections that the female organs fall heir to. There are some 160 pages dealing with the infections of the urethra, bladder, external genitals, cervix and uterus. Palliative treatment in such difficulties enables nature to work wonders. Surgery very often interferes with nature and the patient suffers therefrom. The author offers some very definite data regarding the medical management of these inflammatory affections.

New growths of the reproductive organs, especially cancer of the cervix and body of the uterus, are well discussed and appropriate measures for their detection are given. There is, of course, no medical treatment in these conditions. Total ablation of the diseased organ at the quickest possible time is the only rational treatment of cancer. Treatment of the inoperable cases is given, though not in detail.

A section dealing with the inflammations of the fallopian tubes, followed by one dealing with ectopic gestation, and, finally, a chapter upon the affections of the ovary conclude the volume.

Harvey B. Matthews, M.D.

The Principles and Practice of Perimetry. By Luther C. Peter, M.A., M.D., F.A.C.S., Associate Professor of Ophthalmology, Philadelphia Polyclinic and College for Graduate in Medicine; Ophthalmologist to the Rush Hospital for Consumption and Allied Diseases. 232 pages, with 119 illustrations. Cloth, $2.50 net. Lea & Febiger, Publishers, Philadelphia and New York.

This treatise on perimetry may be truly said to supply the proverbial "long felt want." Although scores of books have been written on refraction and the uses of the ophthalmoscope, yet this work is the only book in the English language devoted exclusively to the subject of perimetry. Details of the various methods of examination are thoroughly explained. More than one hundred pages are devoted to the pathology of the visual fields. The chapter on functional nervous diseases, hysteria, neurasthenia and ophthalmic migrane, is of especial interest. The extensive bibliography has been carefully classified under appropriate headings. This classification helps the reader to select the references which he may require on any particular subject.

James W. Ingalls.

PYELOGRAPHY (Pyelo-Ureterography), A STUDY OF THE NORMAL AND PATHOLOGIC ANATOMY OF THE RENAL PELVIS AND URETER. By WILLIAM F. BRAASCH, M.D., Mayo Clinic, Rochester, Minn. Octavo volume of 323 pages, containing 296 pyelograms. Philadelphia and London. W. B. Saunders Company, 1915. Cloth, $5.00 net.

Only one who has had the experience of Braasch, with his wealth of material at the Mayo clinic, could present such a volume as he has given. The work is complete from the history of pyelography to the uttermost refinements of diagnosis that may be accomplished by this method. Every conceivable condition affecting the renal pelvis and ureter has been described most fully and the illustrations are not only profuse but of excellent character.

While the title is "Pyelography," the work is really a complete study of the urinary tract from the roentgenologist's standpoint. The genito-urinary surgeon will also find much that will be of value to him.

The entire work is a revelation of the possibilities of this method of diagnosis, and the excellence of its presentation and production makes it the authority, at least of the present day, on this subject.

CHARLES EASTMOND.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. By JAMES M. ANDERS, M.D., Ph.D., LL.D., Prof. Medicine and Clinical Medicine, Medico-Chirurgical College, Phila. Twelfth Edition Thoroughly Revised. Octavo of 1336 pages, fully illustrated. Philadelphia and London. W. B. Saunders Company, 1915. Cloth, $5.50 net; Half Morocco, $7.00 net.

Anders' "Practice" is too well known to require any introduction. The twelfth edition retains the familiar form, but has been considerably modified as to detail in order to bring it up-to-date. The subjects partly rewritten and the more important additions include diabetes mellitus, hydrothorax, gastro-enteroptosis, acute anterior poliomyelitis, role of the cockroach in the spread of cholera, glycyltryptophan reaction in cerebro-spinal meningitis, neosalvarsan, the Schick test, complement deviation in pertussis, d'Espinés sign in tuberculosis of the bronchial lymph glands, phenolsulphonephthaleine test, splenectomy in pernicious anemia, chronic pericholic adhesions in gall stones, Bárány and Neumann's test in diagnosis of labyrinthine disease. New sections have also been added on: colon bacillus infections, large cell splenomegaly, tuberculosis of the tyroid gland, vagotony and hypophyseal obesity.

T. H.

THE PREVENTION AND TREATMENT OF INFECTIONS. By OLIVER T. OSBORNE, A.M., M.D., Professor Therapeutics and formerly Professor Clinical Medicine Yale Medical School, Member Council on Pharmacy and Chemistry, etc., *Journal of the American Medical Association*, 535 N. Dearborn Street, Chicago, Ill.

Here, in small compass, one finds up-to-date notions of the subject of infectious diseases—from acidosis to whooping cough—discussed by a teacher of clinical medicine whose clear style and careful discernment save the reader all unnecessary time in study and make the book valuable for quick reference in the care of those sick with the common infections.

Published by the A.M.A., the book comes well recommended.

W. S. H.

BONE-GRAFT SURGERY. By FRED H. ALBEE, M.D., F.A.C.S., Professor Orthopedic Surgery New York Post-Graduate Medical School and the University of Vermont. Octavo volume, 417 pp., 332 illustrations, 3 in colors. Philadelphia and London. W. B. Saunders Co., 1915. Cloth, $6.00 net; half morocco, $7.50 net.

Other things equal, a thoroughly written monograph should appeal to the student more than the stereotype chapter of a general surgery usually devoted to a given subject. There are too many general surgeries and too few monographs. Surgery can no longer be comprehensively dealt with in one work or by one man.

Dr. Albee's monograph lacks the virtue of being a comprehensive work on the whole subject of bone surgery, but it presents to date, a complete study of the use of the bone-graft. It is granted that the author represents authoritative teaching in this field. No book can furnish the experience which successful bone work requires but we all need an abundance of facts to start experience with.

Facts relative to osteogenesis and osseous repair are still so inconclusively understood that naturally the first chapters of the book, those written under the caption "Fundamental Principles," may expect some changes from time to time in the future. The work devotes eighty-four pages to the treatment of Potts disease by the intraspinous inlay graft; fifty-eight to the technic and general application of the inlay graft in the treatment of fractures, and the remainder to the application of bone grafts in the treatment of other and various bone diseases and deformities.

Many of the bone deformities that heretofore offered scant hope of amelioration or cure from ordinary surgical procedures are reported as successfully included in the field of bone graft surgery. Among these are the disorganized joint lesions associated with atrophic nerve disease, poliomyelitis, etc.

Despite natural enthusiasm for operative repair of fractures, the author shows commendable conservatism. This he expresses in the form of a warning against indiscriminate open operative treatment, without special experience, special indication, and special equipment.

Many badly displaced fractures can be perfectly reduced under anesthesia when the vicious idea of waiting for the swelling to subside has been eliminated, and when the reduction is undertaken soon enough after the injury.

Dr. Albee has given us pioneer work and deserves great credit for his classic participation in the work of this the greatest decade in the forward march of surgery.

WM. WOOLSEY.

A GUIDE TO GYNECOLOGY IN GENERAL PRACTICE. By COMYNS BERKELEY, M.A., M.D., M.C. (Cantab) F.R.C.P. (Lond.), Obstetric and Gynecological Surgeon to the Middlesex Hospital and Surgeon-in-Charge of its Military Hospital at Clacton-on-the-Sea; VICTOR BONNEY, M.S., M.D., B.Sc. (Lond.), Assistant Obstetric and Gynecological Surgeon Middlesex Hospital at Clacton-on-the-Sea. Henry Frowde, Hodder & Stoughton, Warwick Sq., E. C., and 35 West 32nd Street, New York City. 1915. Price, $6.50.

This is a work intended for the general practitioner with which to supplement his academic knowledge of gynecology. It gives practical understanding of the clinical intricacies in their varying aspects, thus minimizing the difficulties of diagnosis. An extensve system of cross reference is employed.

No operative work is shown, the reader, instead, being referred to work on operative gynecology. Evidently, the old Ferguson's glass speculum is popular in England, for no mention is made of the metal bivalve, one so commonly used in this country. And in the same line, the uterine sound is still employed as diagnostic aid. We are shown a chapter on the sound, with illustrations as to the correct method of passing it, called the "Tour de Maitre," but nothing is said about sterilizing the instrument. It is further suggested that it be used to replace retroverted uteri, a procedure frowned on by American specialists. While it is true that the sound was extensively used in this country twenty years ago, and that the trained gynecologist, indeed, was he who could pass a sound into the uterus without exposing his patient in the least, this instrument has fallen into almost complete disuse, because we believe that uterine positions should be diagnosed, and displaced uteri should be reolaced, by the hand, and not by instrumentation.

It is noted that the Hodge pessary is introduced with the patient in the Sims position and with the pessary forced in, in the bis-ischial diameter. This is such a radical departure from the American technique as to occasion surprised comment.

The author particularly calls attention to the sypmtom "Backache" and shows that as a gynecological symptom, it is of very little importance. This follows out the idea of Dercum, of Philadelphia. We believe that fatigue causes more backache than any other pathological condition and that too much stress has been laid on backache as a symptom of pelvic disease.

This book deals extensively with medico-legal aspects of gynecological cases, a subject never adequately treated by British writers, although common enough in American works on gynecology.

Altogether this is a sensible reference book and ought to be of value to the English general practitioner. The drawings are excellent specimens of the artist's work.

Clarence R. Hyde.

Milk and Milk Products in the Home. A Book Intended for Students in Home Economics and for Housekeepers in General. By John Michels, B.S.A., M.S. Illustrated. 100 pages. 12 mo. Published by the Author, at Farmingdale, N. Y.

This small volume states many elemental facts about milk and states them very well for the people intended, namely, students in home economics and housekeepers in general.

Reading the chapter on composition one would think that milk was a very simple fluid containing six or seven easily determined elements, whereas most people studying this subject are beginning to feel that we know but very little regarding the delicate structure of a drop of milk.

The author casually mentions that the butter-fat of milk is really made up of at least nine distinct fats. He might well have added that we now know that the proteins of milk are composed of at least eighteen different parts or amino acids. Speaking of enzymes it is stated that they are destroyed by boiling. This is presumably judged by the Von Storch test. Yet such milk will show a reaction for natural unheated milk if run through a homogenizer which leads us into still further wonderment regarding these substances and the increasing complexity of the milk molecule.

The paragraph on air and water cooling might have been improved from a bacteriological point of view if cracked ice were used in the cold water in which the milk receptacle is kept even though this is all within the refrigerator. As long as there is ice in the water surrounding milk we are assured that the temperature of the milk will be such that there will be almost no bacterial growth, whereas cold water only offers no such guarantee even in the refrigerator in the ordinary household.

The author is a strong advocate of pasteurization and furnishes us some interesting thoughts on this question. He says "All milk and cream should be pasteurized in the home, even if they have been previously pasteurized by the dealer." The "once over" does not satisfy this strenuous advocate but he wants to be "doubly sure." We must wonder now whether twice over will make good milk of poor milk. The argument for pasteurization is that it "will kill all of the strictly disease producing bacteria." The author does not say whether "once over" or "twice over" will accomplish this.

"The ideal pasteurization consists of heating milk to 145 degrees F. and keeping it at this temperature for thirty minutes after which it is quickly cooled to 50 degrees F. or below." Not higher or lower, for then there are shortcomings. Yet Rosenau has demonstrated in one of the largest milk plants in Boston that this ideal temperature and time did not kill all tubercle and diphtheria bacilli. Further, Hess has shown that scurvy develops in infants which are fed on milk pasteurized at 145 degrees F. for thirty minutes. Of course, if we can "it is comforting" as the author states "to know that every consumer can make his milk *absolutely* safe against any disease bacteria by pasteurization. We can get that ubiquitous "bug" no matter how much we may damage the milk. He would have us think that

For all milk troubles there is no other
Like pasteurization by dear, kind mother.

As is pointed out no milk is *absolutely* safe, even certified. Things we are told can and do happen to pasteurized milk; it is hard to see where this is always a safe milk. He says "pasteurized milk is often sold when several days old." Old pasteurized milk, especially when kept at rather high temperature, may be dangerous to babies and young children. The bacterial spores which are not destroyed by the pasteurizing process develop into enormous numbers and may cause very serious bowel disturbances and "will usually develop putrid odors with age rather than sour as in the case of unheated milk."

If it is regarded as necessary to pasteurize all milk to make it safe, the author might well have omitted telling us so well, in the very last chapter, of sanitary ideas in the production of clean, wholesome milk, and showing us such fine pictures of clean cow stables.

The longest chapter is on modifying milk for babies. In fact the book opens with a picture of the author's baby and the baby idea runs through much of the book.

The author perhaps for not being a pediatrist has not yet come to recognize that milk for infant feeding is a special problem aside from the ordinary milk supply of any city or community. Ordinary market milk under no circumstances, pasteurized or unpasteurized, should be fed to young babies.

Regarding the nutritional value of pasteurized milk the results of Strauss' work are quoted. We are not told that Strauss has always bought certified milk and pasteurized it, and for good results obtained has always given all the credit to pasteurization.

If the author is acquainted with the works of Mendel, McCollum, Chittenden, Atwater, Benedict, Hess and Kellogg it is surprising that he tells us nothing of how the nutritional value of milk may be damaged.

Would that we had infinite knowledge concerning all the changes wrought in this delicate fluid by man's vaunted methods of improving it, by modifying it, changing it, adding other substances or chemicals to it, heating it or pasteurizing it. We know almost nothing of how it may be thus damaged in its structure. We see a few gross effects sometimes in the babies fed upon it, but what is that knowledge compared to the sum total of possible ill effects not only in the body of the child during its first months, but throughout its whole life.

Harris Moak.

Deaths

Henry Clay Baum, M.D., Syracuse, died August 6th, 1916.

Adam J. Blessing, M.D., Albany, died August 6th, 1916.

Adoniram Brown Judson, M.D., New York City, died September 20th, 1916.

Anthony M. Lacina, M.D., New York City, died August 26th, 1916.

Richard Mott Moore, M.D., Rochester, died September 13th, 1916.

Frances Merriam Myers, M.D., Mt. Vernon, died September 16th, 1916.

Ozias W. Peck, M.D., Oneonta, died August 4th, 1916.

Edwin B. Tefft, M.D., New Rochelle, died August 7th, 1916.

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ORIGINAL ARTICLES

ECZEMA IN INFANTS AND YOUNG CHILDREN.*

By CHARLES GILMORE KERLEY, M.D.,
NEW YORK CITY.

AMONG the disorders of infants and young children that stand apart from those of a serious nature there is none that is of as much annoyance to the patient and the patient's family as eczema. Not only is it unsightly, but as a consequence of the discomfort to the patient nutrition and growth may be seriously interfered with in severe cases.

Eczema in the young may be due to widely different causes. It may be the expression of faulty processes relating to food utilization or the evidence of an immediate reaction against specific food substances.

On the other hand it may be due to conditions entirely external. The skin of many infants and children is very sensitive. External irritations may cause very active reactions. The application of strong soap, linaments or mustard may cause eczema. Woolen garments, exposure of the moist skin to cold air, excessive perspiration, parasitic skin diseases, discharges from the navel, ears or nose, all may supply sufficient irritation to cause an eczematous reaction on the parts exposed.

Eczema involving the buttocks, groin, genitals and inner surfaces of the thighs in which there is the red, raw and sometimes bleeding surfaces may be looked upon as a skin trauma, the outcome of direct irritation of the urine and bowel discharges. Heavy napkins and the stork diaper contribute not a little in the etiology.

Eczema from Internal Sources.—This type of eczema represents a skin reaction to a toxemia, a result of specific food intolerance, and this skin response may be the only expression of the toxemia. Eczema from immediate intestinal sources, so-called intestinal indigestion, is according to my observation a very unusual factor in producing the disease. There is a wide variety of foods that may produce eczema. A child may react to the smallest quantity of a given food or it may possess a tolerance for a food up to a certain amount, exceed this amount, and the skin reaction, redness, inflammation and itching result. An infant may take without inconvenience one-half ounce of milk sugar in his food. Give him one ounce and a skin reaction results. An infant may tolerate a milk mixture containing one per cent of butter fat. Give him two per cent and he reacts. The same may be said of whole milk. I have repeatedly known children to tolerate eight, ten or twelve ounces of milk daily, but when a larger amount was given eczema resulted. In these cases under a very gradual increase in the amount given a tolerance is established. Whole milk in a sufficient daily amount for nutrition will eventually be taken without inconvenience.

A most interesting infant gave a marked constitutional reaction to two drams of cow's milk when two days old. There was prostration, high temperature (106½ degrees) and collapse. This infant, at the third month, could take two drams of cow's milk at one feeding. When four drams were used he broke out at once in an extensive erythema. The eyelids swelled, a coryza developed and the child presented the appearance of the catarrhal stage of measles. Strange to say this child failed to show a local skin reaction to cow's milk. At the present time this child, aged six months, has a capacity of 9 oz. daily of cow's milk.

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* Read at the Annual Meeting of the Medical Society of the State of New York at Saratoga Springs, May 17, 1916.

I attempted to feed a newly born babe on cow's milk. An extensive eczema developed which I could not control. The skin cleared at once when a wet-nurse was supplied. After a few weeks the wet-nurse, who had not taken cow's milk because it did not agree with her, was urged to drink one pint daily. The infant immediately developed an eczema of the case which cleared when the milk was stopped by the wet-nurse. Three attempts were made for my own observation with a like result. The nurse could not take anything containing milk, such as milk pudding, without an eczema appearing in the child. The eczema could be made to appear and disappear with the use of and the withdrawal of cow's milk from the dietary of the wet-nurse.

Orange juice will cause a reaction in the form of red scaly patches about the mouth, the erythema of the cheeks and other portions of the body. Some infants possess no tolerance whatever for orange juice. Others will take a small amount without inconvenience. If an ounce is given the erythema appears. Beef juice will often act in a like manner. I have patients under my care who cannot take a particle of cane sugar but who show no inconvenience in the use of honey or maple syrup.

Butter fat, milk and cane sugar, eggs and orange juice have been proved through processes of elimination to be the most frequent dietetic causes of eczema in observations covering a large number of cases. Cow's milk protein is rarely a cause of eczema and if it is cooked it is still less often a factor.

The scratch skin test for proteins has been of very little value in determining protein capacity in infants, for the reason that there are infants who do not respond to the scratch skin test and yet possess a limited tolerance for the protein in question. It was interesting to observe that among fifty-four eczema cases tested by the scratch skin test thirty-one responded to white of egg; among eighteen eczema cases tested by scratch skin test eight responded to cow's milk protein; among six eczema cases tested by scratch skin test none responded to oat protein; among two eczema cases tested by scratch skin test one responded to barley protein.

When a sensitized patient is given protein internally, to which the skin reacted, symptoms such as vomiting, erythema, urticaria, coryza and collapse may be expected.

Other than eczema we have asthma and urticaria as not infrequent results of protein incapacity.

Mixed Cases.—Many of the cases of eczema due primarily to internal agencies become infected through scratching or exposure to bacteria in the air or clothing, and skin lesions result as described in the text-books.

Management of Eczema.—Cases due entirely to external agencies of an irritant nature are readily relieved by removing the source of the trouble and the application of protective dressings, soothing or stimulating in character. The most difficult of relief is the eczema intertrigo in infants. In these the child is easily taught to evacuate the bowels night and morning. Over the genitals a large bunch of absorbent cotton is placed to catch the urine, and citrate of potash, about twenty grains daily, is given internally. As a protective dressing ungt. aqua rosæ to which white wax is added in the proportion of 10 per cent is used. One thing is to be remembered, the involved areas must be protected absolutely from scratching and other irritation.

Cases in which the food factor is prominent will not be permanently relieved by local measures. I see many cases that have been wrapped in ointments and bathed in lotions resulting only in temporary relief of the disease. Cases of this kind will only be treated successfully by adjusting the diet to the child's capacity.

The Breast-fed.—The question at once arises: "What are we to do in the eczema of the breast-fed?" My first step is to examine the milk of the mother, and if a high fat content is found an attempt is made to reduce it through dieting processes in the mother or in the reduction of the intake in the use of a cereal water, one to three ounces before each nursing, with the result usually not very satisfactory. The child may be improved, but rarely cured. Will the baby be cured through weaning? Almost always with suitable bottle feeding. Is it advisable to wean a thriving baby because of eczema? Practically never. The treatment in nursing babies is accordingly not very satisfactory to patient, mother or doctor. Through the use of the mask and soothing applications comparative comfort may be supplied, and with this all must be satisfied.

The Bottle-fed.—In the bottle-fed the management promises a great deal more and the method I have followed with best results has been in the use of plain skimmed milk or evaporated skimmed milk, cooked with a starch, preferably rice or wheat. All infants digest starch readily and this, with the 4 per cent of sugar in the milk, supplies the carbohydrate vitally necessary because of the withdrawal of the fat. A high protein and a high starch food is given, often with the addition of olive oil to raise the caloric content. As early as the seventh month stewed carrots, squash and mashed potato are added to the diet. The salt of fresh vegetables possess an undoubted therapeutic value.

In undertaking a case of several months' standing I always advise the parents that the child may lose in weight the first few weeks.

In older children past the bottle age the management is along similar lines. Skimmed milk, puddings made from skimmed milk, all the bread stuffs, all cereals but oatmeal, all vegetables, usually twice a day, chicken and butcher meat rarely. Everything given is largely sugar free. If there is constipation a daily evacuation of the bowels is produced by magnesia or cascara. By the above means I have permanently relieved a great many cases of chronic eczema always with the aid of local measures such as salicylic acid and tar, to prevent itching, and mechanical measures to prevent scratching. Among the drugs for internal administration, citrate of potash sufficient to neutralize the urine is the most valuable.

Not all cases of eczema admit of cure, and yet I believe that all cases may be cured if we dared to draw our dietetic lines sufficiently rigid. This might mean a clear skin, but it would also mean faulty growth and some degree of malnutrition. I have cases that I do not dare to cure completely. I have now and then a case that I have entirely cured but do not dare to keep him eczema free because of loss in weight. I believe that proper growth and right development are far more important than personal appearance. The successful management of eczema of internal sources depends upon our ability to discover the disturbing factor to eliminate it or immunize the patient to it.

I am not in accord with any theory relating to a special constitutional state such as the exudative diathesis as necessary for eczema, for the following reasons: That a combination of high butter fat, high sugar of the arts, orange juice and beef juice will produce an eczema in many children who never show the condition when normally fed. Further, eczema may be produced by many foods of widely varying types. How dissimilar are orange juice, cow's milk fat and beef juice and sugar? Not every child, however, will react to all of these foods. The one may respond to beef juice but will tolerate milk. Another will react to cane sugar, but show no response to orange juice. The so-called exudate diathesis or exudative condition with exudative symptoms may be produced at will by the administration of certain food substances in a great majority of children.

One reason for the frequency of eczema in children is because the child is unable to adjust itself to the many varieties of food and food elements which are given him, whether natural or artificial.

Discussion.

Dr. Godfrey R. Pisek, New York City: I want to say a word in regard to this commonsense paper. We are dealing with a problem that I think the general practitioner regards as one of his severest tasks—the eczemas in children. These conditions are extremely common, and yet so difficult to treat. Dr. Kerley has outlined to us his ideas from time to time, and I think most of us have very gladly followed because his ideas have been productive of good results.

There are only one or two things that I would like to emphasize that may be of benefit. One is the question of feeding these cases. He spoke of the fact that they would lose weight. We must tell the parents that the babies probably will not gain weight, and we will be satisfied if we can hold their weight, and we can hold their weight by putting them on skim milk without the addition of any sugar and diluent.

One can often get a very rapid change in the condition affecting the napkin region by exposing the buttocks for a few hours, sometimes a little longer, to the air, and to moderate sunlight. We first get a drying of the skin and then we are prepared to put on our soothing ointments. I go further in those aggravated cases and have them lie upon a ring and have the absorbent cotton in the bottom of the ring so that the discharges are all below the child and do not in any way irritate it, and do not allow diapers to be put on the child.

Now we come to the question of ointments. I am usually told that several consultants have been called in, and am shown a whole table full of ointments. They ask "What would *you* give?" I feel that I could say "Put all those ointments together and rub them up into one mixture and put them on *thickly*." It is a bland ointment that we want, and not any one particular drug.

I believe Dr. Kerley is right in saying we can produce eczema by faulty feeding. There should always be a very close questioning as to the diet—as to the child's fondness for particular *types* of food. The attendant will say

"I have been very careful," but you must go further than that; and you will find that very likely there had been an abnormal craving for sweets or some peculiarity of that sort that must be eliminated and that will help in the cure of the child.

Dr. Charles Herrman, New York City: Dr. Kerley's views which are based on a large personal experience are always valuable and interesting. I should like to discuss briefly one phase of the subject, which he has himself anticipated, namely the so-called "exudative diathesis." No one believes that *all* cases of infantile eczema are constitutional, but this form is not uncommon. Several years ago I followed up a series of 200 infants from birth to the end of the second year, and found that 15 per cent. showed manifestations of the exudative tendency. I should like to ask Dr. Kerley if a certain number of the babies with eczema did not present other manifestations of this tendency in later childhood. At the 1914 meeting of this society Dr. Kerley read a paper on "Recurrent Bronchitis" and mentioned that a certain proportion of the patients affected with this disease had eczema in infancy. Sometime ago I called attention to the fact that a susceptibility to thrush or sprue was often the earliest indication of this exudative tendency. I believe that in the treatment of this condition the important points are to obtain proper elimination and to reduce the amount of food to the minimum compatible with proper nutrition and growth. It is a question of tolerance for certain food stuffs. The problem is not unlike that in diabetes. A certain number of patients resist all forms of treatment and later improve spontaneously without any radical change in the feeding. In a few thyroid extract by stimulating metabolism seems of some value, but that a deficiency of thyroid secretion is not the essential factor is shown by the fact that in a large number of cases of hypothyroidism, eczema was not more common than in other children. A few patients showed improvement when treated with atropin, especially those that had catarrhal manifestations also.

Dr. Kerley, in closing: In my opinion the use of thyroid in skin diseases has been very much exaggerated. In some cases of malnutrition, under-weight and a dry scaly skin I give it in very small doses, 1/16 to 1/20 of a grain three times a day.

In reply to Dr. Herrman's question some one of the many symptoms of the so-called exudative diathesis may be produced in a vast majority of children by unsuitable feeding, and these children may show various manifestations of disease, such as asthmatic bronchitis, frequent cold, recurrent vomiting, etc.

INTRACRANIAL SURGERY AND ITS RELATIONS TO OPHTHALMOLOGY.*

By CHARLES A. ELSBERG, M.D.,

NEW YORK CITY.

THE relations between diseases of the brain and of the eye have been very close from the very beginning. Intracranial surgery was first made possible, after the development of asepsis and of surgical technic, by the intensive study of the physiology and pathology of the brain itself, made by those who had become specialists in this field. As soon, however, as the close connection between the brain and the eye was better understood the ophthalmologist began to study normal and abnormal conditions from the viewpoint of ophthalmology, and as a result our knowledge of diseased states of the brain became much enhanced. In the same way studies by the otologists of the relations of the ear to the brain have given us—or rather are now giving us—our real knowledge of the reciprocal relationship; before this audience I need hardly mention the tremendous advance that has been made by the studies on the functions of the labyrinth and the semicircular canals by Barany. And I believe that the time is not far distant when laryngology and rhinology will contribute their share to our knowledge and understanding of intracranial disease.

Instead of discussing the large subject included in the title of this paper I believe it preferable to speak of some of the ophthalmological problems which I have met with before, during and after my last 200 operations for intracranial disease. With this object in view I hope you will bear with me if my remarks are rather fragmentary and disconnected.

Papilledema and Its Relief by Operation.

That in the large majority of cases papilledema is due to a mechanical cause, from the increased pressure of fluid in the vaginal sheath of the optic nerve, is now the generally accepted view. We do not, however, know why papilledema occurs early in some varieties of expanding intracranial disease and is a latecomer in others in which the intracranial pressure is just as high.

In two of my patients with huge tumors of the frontal lobes and in one with a large tumor on the under surface of the right temporal lobe repeated ophthalmoscopic examinations failed to discover any changes in the fundi. In two cases of large growths in the cerebello-pontine angle there was only slight enlargement of the retinal veins, while a small tumor of the size of a cherry in the angle caused a most intense choking of the discs with hemorrhages.† There is evidently some additional factor, as yet unknown; in many cases the amount of internal hydrocephalus has to do with the changes in the eye grounds. After removal of fluid by puncture of the ventricles the swelling of the discs will almost regularly diminish (though the diminution may be only temporary).

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* Read at the Annual Meeting of the Medical Society of the State of New York at Saratoga Springs, May 17, 1916.

† Many of the eye examinations were made by Dr. Ward A. Holden and Dr. Charles H. May, of New York City.

What confuses this view, however, is the fact that some cases of internal hydrocephalus run their course without any change in the discs, or, if there is marked downward distension of the third ventricle, with primary optic atrophy.

Papilledema may reach a high grade very rapidly, and retinal hemorrhages may occur over night, as in the following cases:

A young woman was admitted to my service with symptoms of mid brain tumor, but without any changes in the fundi. Two days later we were astounded to find that she had a papilledema of four diopters in each eye with hemorrhages. On the following day she was operated upon—a bilateral subtemporal decompression and a puncture of the corpus callosum were performed. Just before the operation, the elevation of the discs was almost six diopters.

A young man was admitted to my service at Mount Sinai Hospital with the symptoms of a left cerebellar tumor of six months' duration. Upon admission to the hospital the eye grounds showed a swelling of almost four diopters; on the following morning both fundi showed numerous large hemorrhages.

Papilledema may subside with great rapidity: Thus, four hours after an operation for meningeal hemorrhage a swelling of two diopters in each eye subsided entirely.

In the first case above mentioned—that of the patient with a mid-brain tumor—the swelling was reduced from six diopters to one diopter twenty-four hours after the operation.

As is well known, papilledema of a marked grade may exist for years without any subjective diminution in vision. If, however, vision once begins to fail, it will fail very rapidly.

One of the most frequent questions we have to answer before an operation for a brain tumor is: Will sight improve or not? The following has been my experience. Papilledema of short duration even when very advanced, and with marked diminution in visual acuity, may, after the appropriate operation, disappear entirely, and normal vision be regained. Sudden blindness from acute choking of the discs is, after the operation, usually entirely recovered from. Loss of vision from a long-standing papilledema is usually permanent. If sight has been lost it will rarely return; it is vain to hope that a quick operation will do any good. Some vision has been restored in a few patients who had a marked internal hydrocephalus associated with their new growth; in these, the restoration of sight followed the withdrawal or drainage of fluid from the ventricles. In most instances, if vision is lost for twenty-four hours from advanced choked discs, it is usually lost for good.

The time will soon come, I hope, when choked discs will be considered a late and not an early symptom of brain tumors. As soon as any evidence of swelling of the discs has been found, the shortest possible time should be occupied in excluding other disease before the patient is referred to the surgeon for relief.

Unfortunately, the patients are often first seen when the choking of the discs is already marked. I have recently studied the cases of brain tumor on the service of Dr. Pearce Bailey at the New York Neurological Institute; it may be of interest to cite the results of the first eye examinations in the sixty-three patients.

The fundus was normal in........	24
Papilledema of 1 D..............	6
Papilledema of 1-2 D............	11
Papilledema of 3-4 D............	13
Papilledema of 5-6 D............	9

Only twenty-eight patients complained of failing vision, but thirty-nine had more or less well-marked swelling of the discs, and twenty-two had a papilledema of a high grade. That 62 per cent of the patients should have sought aid only when they had marked papilledema and 35 per cent only after the swelling of the discs was far advanced is nothing less than appalling, and indicates that in many cases ophthalmoscopic examinations are put off too long. During the past year I have twice operated upon a patient with marked papilledema, in whom a very successful operation, with rapid subsiding of the swelling of the discs, failed to save eyesight. The patients had advanced grades of choking of the discs with much connective tissue proliferation, so that, in spite of a decompression in one and removal of the tumor in the other case, the connective tissue contraction produced sufficient additional atrophy to deprive the patient of his remaining eyesight.

I have looked over the records of 100 patients with brain tumor in order to learn whether there is any relation between the side of the tumor and the papilledema. This is a question that has often been answered in the negative. Every now and then statistics or experiments are published to show that there is a relationship. In less than 40 per cent of my patients was the swelling most marked on the side of the tumor. In about 60 per cent of patients with a new growth in one or the other frontal lobe the papilledema was most advanced on the side of the tumor, so that for the side localization of a frontal tumor this fact has importance. When I studied my cases from a different viewpoint—i. e., that of the post-operative subsidence of the papilledema—the following interesting facts were discovered: In 84 per cent of the patients the papilledema of the eye on the same side as the tumor subsided much more rapidly, after the growth was removed, than that of the opposite side. If a decompression was done the papilledema subsided more rapidly on the side opposite to that of the tumor, unless the tumor was located on the same side as the decompressive operation. If a bilateral decompression was performed, then the eye contralateral to the side of the tumor improved more rapidly than its fellow. Thus in the case of a patient with a removable growth in the right cerebello-pontine angle, with a swelling of six diopters in each eye, the swelling of the nerve head in the right eye was entirely reduced at a time when that of the left side was still more than two diopters. In another patient with an irremovable growth in the right cerebello-pontine angle, for which a bilateral suboccipital decompression was performed, the papilledema of the left eye had entirely disappeared at a time when that of the right side was still two diopters.

The Effects of Direct Pressure Upon the Nerves and the Chiasm and Its Relief by Operation.

For several years we have carefully studied the effects of direct pressure upon the optic tracts and chiasm, whether due to pressure from a distended third ventricle, as occurs in internal hydrocephalus, to distant pressure as in frontal lobe tumors, or to direct pressure as in expanding lesions of the hypophysis and in the interpeduncular space.

We believe that Foster Kennedy is right in the claim that enlargement of the blind spot is especially frequent in tumors of the frontal lobes, and that in a suspected frontal new growth a paracentral scotoma due to a blocking of the more sensitive macular fibers is of frequent occurrence.

Our experiences in hypophyseal diseases are in entire accord with those of Cushing and Walker. We have seen homonymous hemianopsia even quadrant defects in a number of patients. There is no reason why growths in the sella turcica must always exert their pressure in the midline so as to cause bitemporal hemianopsia. If the visual fields are tested with small test objects instead of large one-centimeter ones, small quadrant defects in the temporal fields for form, and especially for color, will be frequently discovered (Walker).

We have asked ourselves why patients with hypophyseal disease are often seen with one eye blind while the other is still normal or has a more or less well-marked defect in the temporal field. The explanation for this is often difficult; in one of my patients, however, in whom I exposed the sella turcica by a transfrontal operation, an hypophyseal adenoma surrounded the chiasm and had also grown around the left optic nerve.

Can sight be regained in an eye that is blind from direct pressure on the chiasm or optic nerve, when the pressure is removed? The outlook for a return of vision is better than in the case of blindness from papilledema. A return of vision is possible as long as the pupil will contract to light. In one of my patients with an hypophyseal cyst with one eye blind for over six months, and the other hemiopic on the temporal side, a sellar decompression and emptying of the cyst was followed not only by a great improvement of the hemianopic field, but some sight returned in the blind eye. The field defects, in these cases, are for a long time due to an interference with function by pressure, and when the pressure is relieved the vision will return with great rapidity. This was well shown in the following unusual case:

A patient was transferred to my service from the medical service of Dr. Manges at Mount Sinai Hospital. He had been akromegalic for years. After a febrile affection he developed signs of an infection of the sphenoid sinuses with signs of basilar meningitis and rapid deterioration of vison. Wthn two weeks the right eye was blind and the left eye showed a large temporal defect. As the signs of meningitis disappeared after drainage of the sphenoid sinus, sight rapidly returned in the blind eye and the hemiopic field became rapidly enlarged. Two weeks after improvement had begun, the fields of both eyes had returned to the normal.

Finally, I want to call to your especial attention the fact that some tumors of the brain may attain considerable size without giving rise to headache. In these patients the only evidence of an expanding lesion may be the changes in the eye grounds or in the fields of vision. Steadily enlarging paracentral scotomata and increasing papilledema may cause the patient to consult the ophthalmologist, and the latter should not be misled by the absence of headache. I have seen patients in whom palliative or radical interference had been too long delayed because the condition was considered one of toxic retrobulbar neuritis, although the slow onset and gradual course first in one eye and later in the other were totally unlike that of the ordinary primary optic atrophy.

Discussion.

Dr. Clifford B. Walker, Boston: The paper just presented is one of tremendous interest and we hope that more and more of these studies will be made throughout the country, especially in larger cities, where greater numbers of cases can be obtained.

With regard to the rapid onset and recession of choked discs as described in the paper, it has been my experience that a change of three or four diopters does not occur in one or two days, but more likely in one or two weeks. There are errors in the measurement of choked discs which at first are rather easy to make. In Dr. Cushing's clinic it has been noted that it is usually six months to a year before an interne learns to accurately measure discs. Early choked discs of two or three diopters have been overlooked until something more definite pointed to cerebral pressure, and then it was suddenly noted that three or four diopters of swelling was present, possibly leading to the assumption that it came on in one or two days. Again after operation the examination seems to be made with a certain optimism; the disc is expected to be of lower measurement and sometimes is recorded absurdly low. In addition to this sort of thing errors may of course result from errors of refraction or lack of control of the patients as well as the observers' accommodation. In my experience, a change in the elevation of one diopter the day after operation represents a maximum increment, and this rapidity decreases with the length of time after operation, so that the last one or two diopters of elevation are much slower in disappearing than the immediate recession after operation. For the most part an elevation of five or six diopters will at best require two or three weeks to disappear under the most favorable circumstances.

With regard to return of the vision in the blind eye after operation, we may say that it is not absolutely necessary that light reaction be present before operation as an index of light perceiving ability when pressure is released. We have had several cases where the pupillary light reaction has been definitely nil as well as the vision, yet return of light perception and pupillary reaction were obtained subsequent to operation. These cases are, however, the exception rather than the rule, and for the most part, when pupillary action is lost as well as the vision, the outlook is most unfavorable.

Concerning color interlacing in cases of cerebral pressure, little has been said recently. However, I may say here in anticipation of a paper soon to be published in the "Transactions of American Ophthalmological Society," that I feel sure that color interlacing has been considerably overestimated as an index to cerebral pressure. In the study of the total series of cases in which this phenomenon has been recorded, we came to the conclusion that it could be usually traced to variation of personal equation in the observations or inaccurate measurement under unfavorable conditions. Altogether, we now believe color interlacing of little importance in the diagnosis of cerebral pressure. Indeed, if we were to choose between examination with colors and with a series of discs of decreasing visual angles down to two or three minutes, we should feel inclined to depend on the very small discs and visual angles rather than on the colors, in the diagnosis of early pressure changes, such as enlargement of the blind spot or scomatous areas as well as contraction in the field peripheries.

I may state in closing that I have recently been very much pleased with the apparatus built in our shops at the Brigham Hospital by means of which the fields may be taken at any time of the day or night with patients in any position, either upright or reclining in bed. With this apparatus the perimeter is suspended from above on a carriage adjustable as to height and traveling on a crane. A system of counterweights, pulleys, and rackets make adjustment easy in any position. Illumination is obtained from a battery of tungsten or nitrogen vapor lamps on a circle back of the patient's head. The light is of sufficient strength and proper quality to very closely imitate daylight. The colors suffer a little by this illumination compared with that of daylight, but they have been found to be by photometric tests quite within the limit of variation of colors to be found from office to office or from clinic to clinic. Details of this method of examination will soon be published.

Dr. Wendell Reber, Philadelphia: There is one point about the measurement of choked disc that I think should be brought out. I was asked to see a case about two months ago, where it was claimed there was a papilledema of six diopters, and the summit of the disc was indeed six diopters. But if you went out into the level of the ordinary retina, the man was three diopters hypermetropic; so he really only had an edema of three diopters. And when we went over the measure of the other eye, it also had no edema and a three-diopter hypermetropia. I don't think this point is sufficiently taken account of. I absolutely agree with Doctor Elsberg that vision that has been lost for any length of time is as a rule lost.

But I would like to raise the point whether vision which exists at the time of the operation may not be nearly preserved. And that is no small matter. I have on hand right now a man who drifted around the western end of Pennsylvania for four months with a brain tumor in the silent regions of the brain—absolutely no indications whatever other than a badly contracted field and a bilateral papilledema. The left eye was blind and there was vision of only four-sixtieths in the right eye. I insisted that the man be operated on, for reasons of sight only, and his sight has been preserved to that extent. And four-sixtieths sight is no small matter to a man who has but one eye.

One other point—as to the artificial daylight, which I was very glad that Dr. Walker brought out. Dr. Herbert Ives, of Philadelphia, devised an artificial daylight apparatus about a year ago, which I now have in use on my test cards. It is a chamber, which might be used with a hand perimeter at practically any bedside, and will give, I think, about as close approach to the normal color conditions as Dr. Walker says we can meet with in ordinary offices under ordinary circumstances.

Dr. John W. Dean, Glens Falls: On April 11, 1914, called to see Mr. M., age 47, injured one week previously by fall of thirty feet, striking on head. Previous vision thought to be normal. Found vision O. D. 1/40, disc margin swollen three diopters; O. S. 1/200, disc margin swollen five diopters. Two weeks later vision O. D. 9/10, disc margin normal; O. S. 7/10, disc margin swollen one diopter. Four months later vision 4/10 in each eye; with correcting lenses 4⅓/10 in each eye. End of one year vision in each eye 4/10.

January, 1915, one and two-third years from date of injury, vision in each eye 4/10, with secondary atrophy of optic nerve.

Dr. Martin Cohen, New York City: I have never observed the presence of choked disc during my service, for the past five years at the Harlem Hospital, where we have in the hospital a comparatively large number of cases of fractured skulls; it is possible these cases decompress themselves through the site of injury, also by way of the nose or ear (some brains are not compressed), thereby preventing an increased inter-cerebral pressure.

Another fact which I have noted in cases of brain injuries associated with sudden unilateral amaurosis is that the fundus findings might remain normal for several weeks, when the gradual appearance of a primary optic atrophy becomes evident; this condition is due to loss of continuity of the optic nerve, producing loss of visual conductivity.

Dr. Percy Fridenberg, New York City: If there is no further discussion, before calling on Dr. Elsberg to close, The Chair would just like to say a word about clinical perimetry. I think ophthalmology is indebted to Dr. Walker for his painstaking work and his improvement in methods. I have been working for the last few years on simplification of the method. I think that a great deal of the confusion in our judgments as to color fields is due to the fact that we have so few data as to the color fields in normal conditions. In the ordinary run of clinical cases perimetry, and especially the mapping out of the color fields, is a very slow and a very irksome task. I think that we ought to make an effort to apply these tests to our patients more generally than is done. Any one who has examined his patients frequently to determine the color tests will know how they vary; how they change from day to day so that the first color field is something entirely different from the second color field, even if the clinical condition of the patient has not changed at all.

Then, where it comes to determining central color vision anomalies, the question of an absolute fixation is a very important matter. It isn't sufficient alone to take very small colored objects, as has been shown by Dr. Walker and others, but you have to insure fixation. Because if there is any motion of your eye you are going to get areas outside of the macula interested in that vision, and your results will not be effective.

I have been rather dissatisfied with the use of the so-called "stereoscopic fixation" of Haitz, and I have devised one or two little instruments by which I got an absolute fixation in the following way: The object was illuminated instantaneously—that is, after the patient had fixed the target which was to be illuminated with one color. The color object then, no matter how small, was illuminated for a fraction of an instant, and then the light went out before the patient was able to move the eye. If the color was seen then it must have been seen with the fixing point of the retina.

The apparatus which Dr. Walker has shown to you is undoubtedly a very good one. The question is: Can we have a simple color carrier to use where we haven't access to such an apparatus? I think the ordinary hand perimeter can be used, if we make a use of some little light object which could be transported and used very simply. And what I have used at home—I am sorry I haven't one with me—is one of these little pocket electric lights, with the push-button at this side; and at the top here I have the disc—a little rotating disc with the colors in. And up here I have a quadrant, with openings, one-half a millimeter, one millimeter and two millimeters in diameter. And you can rotate in one hand and you can stond in front of your patient in bed and move it along the arc of the perimeter. I haven't an absolute daylight illumination, but what I have is a very strong lamp behind this opening. And my equivalent for white is a Chinese paper, which practically has the effect of milk glass. The colors are illuminated also by this bright electric light behind, and are almost spectral in clearness and in purity.

Now, with a thing of that sort, holding it directly before the point of fixation and closing the patient's other eye, and holding this little target between your own eye and the patient's, you can get it right opposite his pupil; you can then press the button for a second and tell him to say what the color is; you can see by your own pupil in line with his whether you have got that absolutely in macular fixation or not. And just give that button one touch and your light flashes up. If he hasn't seen it that settles it.

And I found it particularly good in mapping out the blind spot. That is just a little suggestion to simplify these methods.

I will call on Dr. Elsberg to close the discussion on his paper.

Dr. Elsberg: Just one word on the relation of intra-cranial surgery to ophthalmology, and the relation of decompressive operations for the relief of papilledema where the intracranial disease cannot be eradicated—where the tumor cannot be removed.

We have become used to the idea that in supra-tentorial new growths the best decompressive operation is a right sub-temporal decompression. In a large number of cases I have been watching the results of various decompressive operations, and especially of combinations of decompressive methods. The larger my experience the more I am tending to the belief that the ideal decompressive method for supratentorial disease is not the ordinary right subtemporal decompression, but it is a combination of methods—perhaps a right sub-temporal decompression with a puncture of the corpus callosum; perhaps a right and a left sub-temporal decompression—the right being done first and the ventricle punctured before the left opening is made; or a combination of all of these. I have seen better decompressive results by far from these combined operations than from right sub-temporal decompression alone.

THE DIAGNOSIS AND CLINICAL CHARACTERISTICS OF GOUT.*

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"THE gout affords a striking proof of the long experience and wary attention necessary to find out the nature of diseases and their remedies. For though this distemper be older than any medical records, and in all ages so common; and besides, according to Sydenham, chiefly attacks men of sense and reflection, who would be able, as well as willing, to improve every hint which reason or accident might throw in their way; yet we are still greatly in the dark about its causes and effects, and the right method in which it should be treated." So wrote William Heberden in his "Commentaries" in 1782.

Although more than a hundred years have passed since these lines were penned, and although notable advance in the knowledge of gout has been made by clinical, chemical and pathological studies, yet the statement of William Heberden holds true today, for "we are still greatly in the dark about its causes and effects."

The disease is known to be definitely related to a disturbance of the purin metabolism. The blood in gouty patients usually contains two to four times as much uric acid as is found in health. After feeding food rich in purins the increase in the uric acid output in gout compared with that in health is generally delayed and diminished. In the intervals between attacks of gout, the uric acid output on a purin-free diet is generally less than normal. The acute inflammation of the joints in gout is followed by the deposition of sodium urate in the affected parts. In chronic gout large deposits of sodium urate in the subcutaneous tissue frequently occur, forming chalk-like nodules called tophi.

The recent discovery by Folin and Denis of a trustworthy method for determining the amount of uric acid in the blood and its clinical application has renewed interest in gout. The studies of the past three years made with the aid of blood analyses for uric acid have shown that the writers and teachers of fifty to one hundred years ago knew more about gout and its clinical characteristics than many of those who have written and studied the disease in recent years.

The greatest confusion exists in the minds of many practitioners in America today regarding this disease and its diagnosis. In some parts of the country the diagnosis is frequently made in conditions that are not gout; in other parts there seems to be a scepticism in the minds of many practitioners regarding the existence of such a disease. In New England I have found that chronic gout, even when tophi occur, is often mistaken for rheumatism or arthritis deformans. Some physicians of large experience in the Middle Atlantic States assert that they see gout frequently. Inquiry has shown that they regard cases of arthritis deformans as gout and mistake the swellings about the joints and even Heberden's nodes for gouty deposits. One writer has analyzed and reported as gout 34 cases of arthritis that came under his observation in private and hospital practice in New York during a period of only a few months. These included seven cases in women, in whom true gout rarely occurs.

At one health resort, judging from my experience, many patients who have no form of joint disease are told that they are gouty and that "their system is loaded with uric acid." Only one of the arthritic patients I knew who had been there brought back the assurance from his physician that he did not have gout, and singularly enough he was the only one who actually did have it. In his case the existence of tophi removed all doubt regarding the correctness of the diagnosis.

One of the chief reasons for the widespread misconceptions regarding the symptoms and signs of gout is the rarity of the disease in this country. Leading physicians in New York, Philadelphia and Chicago have told me within the past two years that they see very few cases in either hospital or private practice. In a paper published by Dr. J. M. DaCosta,[3] of Philadelphia, in 1881 he says: "There is a belief that gout is rare in this country, and typical gout is certainly rare." Dr. Horatio C. Wood,[4] of Philadelphia, in an address delivered in 1897 made the following statement: "I have seen two cases of typical English gout corresponding to Sydenham's description and only two. We do not have it in this country." This was apparent confirmation of the assertion made by Sir Dyce Duckworth[5] a few years earlier that "In the United States of America gout is practically unknown." Dr. Osler,[6] writing on "Acute Gout in the United States" in 1895, states that "The comparative infrequency of gout in this country is a matter of every day comment." He described three interesting cases he had seen during the previous year in private practice, and stated that he had during the session of 1894-95 in the ward four cases of gouty arthritis at one time, which was an unique event in his hospital experience.

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Dr. Osler was convinced that the disease was often unrecognized in the United States, and in his clinical teaching he impressed upon the students the importance of a careful search for tophi on the ears or about the joints in every case of chronic arthritis. As a result Futcher[7] was able to collect in 1902 from the records of Osler's clinic no less than thirty-six cases of gout that were admitted to the Johns Hopkins Hospital during a period of eight years. A later statistical study prepared by Futcher[8] for his monograph in Osler's "System" was based on a series of ninety-two cases of gout observed among 30,871 medical admissions.

I am convinced that chronic tophaceous gout is less common in hospital practice in Boston than in Baltimore. For years I have made an examination of the ears for tophi a routine procedure and rarely have I found them.

This assertion is supported by the statistics of Massachusetts General Hospital. In the medical wards from 1821 to 1916 there were only forty-one cases diagnosed as gout among the 199,518 patients admitted.

Cases of Gout in the Medical Wards of the Massachusetts General Hospital.

Years.	Number. of Cases
1821-1870	2
1870-1880	6
1880-1890	5
1890-1900	9
1900-1910	7
1910-1916	12
1821-1916	41

In the Out-Patient Department of the hospital from August, 1903, to May 15, 1916, among 298,000 patients admitted to all the clinics, the diagnosis of gout was made forty-two times. This makes a total of eighty-three cases collected from the records of 497,518 patients.

The fact that more cases of gout have been treated in the wards during the past six years than in any decade prior to 1910 suggests that the disease has been overlooked in the past, but possibly the use of Folin's method for determining the amount of uric acid in the blood has brought more cases into the hospital for study and treatment during the past three years.

In view of the widespread errors regarding the symptoms of gout it is interesting to see what the medical students were taught about gout in the early days of this country at the three leading medical schools—the University of Pennsylvania in Philadelphia, Harvard in Boston, and the College of Physicians and Surgeons in New York.

From Benjamin Rush,[9] for many years the professor of medicine at the University of Pennsylvania, the students could have learned little about gout that was sound, for his well-known essay on this disease is filled with errors. There is no evidence in this record of his clinical observations that he had ever studied a case of true gout. A few quotations will indicate what a range of symptoms were regarded by him as diagnostic of gout. "The great toe and the joints of the hands and feet are no more its exclusive seats," said Rush, "than the 'stomach is the throne of yellow fever.' In short gout may be compared to a monarch whose empire is unlimited. The whole body crouches before it. . . . The gout affects the glands and lymphatics. It produced a salivation of a profuse nature in Major Pearce Buller which continued for two days. It produced a bubo in the groin in a citizen of Philadelphia. He had never been infected with the venereal disease, of course no suspicion was entertained by me of its being derived from that cause. . . . Scrofula and all the forms of dropsy are the effects in many cases of a disposition of the gout to attack the lymphatic system. . . . A distressing collection of air in the rectum which renders frequent retirement from company necessary to discharge it, is likewise a system of gout."

Contemporary with Rush there was living and teaching in London, William Heberden, whose writings on gout are as valuable to our generation as to the one for which they were prepared. In his long and extensive practice it is said that he saw as much of this disease as any physician ever did, but Rush in his writings was uninfluenced by the opinions of Heberden and even the masterly clinical description of the disease by Sydenham had upon him no restraining influence. From a study of Rush's essay the conclusion seems justified, in view of the high esteem in which he was regarded by men of sense, that true gout was practically unknown in the American colonies.

The teaching in Boston regarding gout was doubtless along the lines followed by James Jackson[10] in his Text-book of a Course of Lectures on the Theory and Practice of Physic, prepared for the use of students at Harvard and published in 1825. In this the diagnostic features of gout are not clearly or fully described. The chief symptoms that distinguished the disease from rheumatism are not given and no mention is made of tophi. It is certain that the students saw no cases of the disease, for although the Massachusetts General Hospital was opened in 1821, the first case diagnosed as gout was not admitted until 1845. This was probably an example of tophaceous gout, but characteristic features of the disease, if they existed, were not brought out in the clinical record. The poor history as well as the inadequate note on the physical examination raises the suspicion that little was known by the attending physicians at that time about gout and its recognition.

In the clinical lectures of David Hosack,[11] professor of medicine at the College of Physicians and Surgeons in New York, there is an excellent description of gout. It is evident from his statements that he had some personal knowledge of the disease.

In the middle of the last century the standard text-book on medicine was that of George B. Wood,[12] professor of medicine in the University of Pennsylvania. To his teaching must be attributed some responsibility for the diagnostic errors of his students and readers. He held that a condition which he termed "nervous gout" was increasingly common, having to a considerable degree superseded the old-fashioned gout. "I have no doubt," he writes, "that much of the neuralgia, now so prevalent, is only gout or rheumatism in the nervous form."

Many physicians still hold the false belief that an increased output of uric acid in the urine or the formation of the pink or lateritious deposit is characteristic of gout. This error is due in large part to the view commonly held a generation ago that a pathological state allied to gout exists, a "half gout" as it was called, to which Murchison[13] gave the name "lithæmia." DeCosta[3], writing in 1881, said that in this country "lithæmia is most common, and if it be true gout it is pre-eminently the American gout." The "abundance of lithic acid (uric acid) or lithates in the urine," said DaCosta, "frequently co-exists with signs of ill-assimilation of food, with aches and pains unaccompanied by any perceptible changes of the aching part." As the aches and pains of neurasthenia were attributed to "lithæmia" or the "American gout," whenever a deposit of urates formed in the patient's urine on cooling, it must have followed that this diagnosis was frequently made. As late as 1895 a leading clinical teacher in a paper on irregular or atypical gout said, "headache, migraine, depression of spirits, shooting pains, cramps, palpitation and vertigo are a part of the symptomatology of lithæmia."

In the same year there appeared the "American Text-book of Medicine," edited by Pepper, which contained an article on gout as misleading in its teaching regarding this disease as anything that had been prepared for the American medical student since the days of Rush. Gout, the author asserted, was the most conspicuous manifestation of the arthritic diathesis, and a concise and accurate definition of the term was impossible. Gout and nineteen other diseases which are enumerated were all dependent, he claimed, upon "a peculiar and ill-defined retardation of nutrition that constitutes the arthritic diathesis."

The false ideas regarding gout and the hypothetical clinical condition "lithæmia" were so deeply rooted in the minds of physicians that fewer facts and more fancies concerning gout were taught in America, in the latter part of the eighteenth century, than by Heberden in England a hundred years earlier.

The admirable article on gout in the first edition of Austin Flint's "Practice," which appeared in 1866, can only be appreciated at its full value by one familiar with the false views so generally held at the time it appeared. Flint coined the term uricæmia to designate the excess of uric acid in the blood which Garrod had shown to exist in gout. The false teachings regarding "lithæmia" and the "uric acid diathesis" never crept into this text-book of medicine, which always remained a trustworthy guide to the student. In his last revision[15] he showed the critical scientific spirit which pervades all his writings in his brief reference to this subject. "The designation 'uric acid diathesis,'" he said, "is used by some physicians in a rather indefinite way to describe various morbid states which may not at any time be accompanied by deposits of urates and in which there is no proof of an excess of uric acid in the blood."

This criticism of Flint regarding the "uric acid diathesis" was well founded, as recent studies made with the aid of blood analysis have shown that there is no increase of uric acid in the motley group of disorders which were regarded by Murchison and his followers as due to "lithæmia" and "uric acid diathesis."

Symptoms of Acute Gout.—The clinical picture of a typical attack of acute gout has been drawn so clearly and so accurately by Sydenham[10] that it should be read and remembered by every student of medicine. I will quote a portion of his description:

"The victim goes to bed and sleeps in good health. About two o'clock in the morning he is awakened by a severe pain in the great toe; more rarely in the heel, ankle, or instep. This pain is like that of a dislocation, and yet the parts feel as if cold water were poured over them. Then follow chills and shivers increase. After a time this comes to its height, accommodating itself to the bones and ligaments of the tarsus and metatarsus. Now it is a violent stretching and tearing of the ligaments—now it is a gnawing pain, and now a pressure and tightening. So exquisite and lively meanwhile is the feeling of the part affected, that it cannot bear the weight of the bedclothes nor the jar of a person walking in the room. The night is passed in torture, sleeplessness, turning of the part affected, and perpetual change of posture; the tossing about of the body being as incessant as the pain of the tortured joint, and being worse as the fit come on. Hence the vain efforts, by change of posture, both in the body and the limb affected, to obtain an abatement of the pain. This comes only towards the morning of the next day, such time being necessary for the moderate digestion of the peccant matter. The patient has a sudden and slight respite, which he falsely attributes to the last change of position. A gentle perspiration is succeeded by sleep. He wakes freer from pain, and finds the part recently swollen."

To show the accuracy of Sydenham's description of genuine acute gout as the disease is seen in America, I will give the description as recorded on the clinical histories of four patients seen within a year.

C. F., male, aged forty-nine. Seen April 5, 1915. About 1895 he had acute inflammation of the great toe of the right foot. There was marked swelling, redness, and extreme tenderness. The pain was excruciating and continuous. Even the weight of the bedclothes increased it. For three nights he got almost no sleep. Duration of attack about two weeks.

D. T., male, aged fifty-five. Seen June 16, 1915. The first attack of gout in 1900 in great toe of right foot. One day he felt a little lame. The following morning about 4 A. M. he awoke with very severe pain in the metatarso-phalangeal joint. The joint was swollen to the "size of an apple" and was as "red as a beet." It was a jumping pain and continued for three or four days. It disturbed his sleep. He thinks it was worse during the night than day. He was confined to the house six or seven days. Relief was obtained by rubbing about the inflamed joint, but the joint itself was exquisitely tender.

J. T., male, aged forty. Seen August 5, 1915. First attack of "rheumatism" in 1907. It began in the wrists. They were painful, reddened, and swollen. A day or two after the onset both great toes became greatly inflamed. They were distinctly swollen, very red and shiny. If they were touched he "had to holler." The pain was more severe during the night. He scarcely slept at all until six o'clock in the morning.

Mrs. A. McC., aged fifty-eight. Seen October 3, 1915. In January, 1915, attack of acute inflammation in the right great toe. Confined to bed two weeks. Onset very sudden. Felt perfectly well the previous day. Awakened at 4 A. M. with "terrible" pain. When morning came toe was greatly swollen. It was two to three times the natural size and it became very red. By night the whole foot was purple. Pain severe for several nights. The severe inflammation lasted two weeks. The tenderness was so great that she became uneasy as soon as any one approached within two or three feet of the bed, for fear that the joint would be touched or moved.

Seat of the Affection.—It is a remarkable fact that the disease usually vents its first fury on the great toe. All authorities are agreed upon this. Sir Charles Scudamore[17] found in an analysis of 516 cases of gout that in 373 the great toe was involved either alone or with some other joints in the first attack. In Garrod's[18] experience in not more than 5 per cent of the cases was the great toe not implicated in the first fit of gout. In later attacks of acute gout and especially in the milder joint manifestations of chronic gout the great toe may escape and the inflammation be less typical. Hence it is important to obtain an accurate description of the initial attack and to ask every patient suspected of having the disease if the great toe has ever been involved.

The Character of the Inflammation.—The classical symptoms of inflammation—dolor, rubor, and tumor—are present. I have seen a typical attack of gout in the elbow mistaken for a phlegmon, and an operation undertaken.

The pain is intense, amounting often to torture, and its severity is of great diagnostic value. In rheumatism, the disease with which gout is usually confused, the pain is not so great, and rarely causes much suffering unless the affected part is moved. Watson[19] in those fascinating clinical lectures that will never grow old says that the distinction between the two diseases was described by a humorous Frenchman in this way: "Place" (says he), "your joint in a vice and screw the vice up until you can endure it no longer. That may represent rheumatism. Then give the instrument another twist, and you will obtain a notion of the gout."

Your own Hosack emphasized the severity of the pain in a way that probably stuck in the minds of the young students in New York a century ago. Let me quote from his lecture on gout.

"Some compare it to the gnawing of a dog, the pressure of a vice, or the pain of the actual cautery; this probably is not far from the truth, judging from the anecdote I have heard of a man subject to gout. This man falling asleep, barefooted, before a large fire, the fire fell, and a large coal found its way to his foot—half awake and half asleep, he cried out, 'There's that d—d gout again!' He at length awoke, when he found a large coal frying his great toe. The sensation of the two evils was probably the same."

The exquisite tenderness of the affected joints in gout has been recognized by all authoritative writers since the time of Sydenham, yet a professor of medicine in a New York school as late as 1896 states in a paper on gout and rheumatism that in "rheumatism particularly when a joint is acutely inflamed there is usually more superficial or cutaneous tenderness than in gout"!

The occurrence of œdema in the gouty part and the subsequent desquamation of the skin are characteristics of the acute attack that were emphasized by Garrod. The attack usually lasts many days and sometimes for weeks. There is some fever at onset but the temperature is rarely high. Profuse sweating, so common in acute rheumatism, is said never to occur in gout.

True gout rarely develops before the age of twenty and the onset is more frequent between the ages of thirty and forty than during any other decade (Scudamore). Hosack pointed out to his students that the disease usually occurs after the thirty-fifth year. He contrasted this with rheumatism, which "generally appears between puberty and thirty-five, in the greatest vigor of life—gout after that period—so that we may say, where rheumatism ends, gout begins."

One should always be suspicious that an attack of acute febrile inflammation of the joints occurring after the age of thirty-five in a person who has never had a previous attack of rheumatic fever is not rheumatism but gout. Acute endocarditis, which is such a common complication of rheumatic fever, does not occur in gout. Another aid to differential diagnosis is the frequent association of gout and chronic interstitial nephritis and the rarity of acute rheumatism and chronic Bright's disease in the same person. Some of the cases of polyarticular gout I have studied have closely simulated rheumatism.

In the following case the correct diagnosis was not made by the eight or ten physicians who had treated the patient during the twenty-seven years that he had suffered from recurrent attacks of gout. All had regarded the disease as rheumatic fever. I did not feel sure of the diagnosis until I saw the swelling on his elbow, which presented the typical picture of a chronic gouty olecranon bursitis.

C. A. P., male, aged fifty-seven. Suffered from rheumatic fever severely from the age of thirty to fifty-two. Knees usually affected, but nearly all joints have been involved. During the attacks there was marked swelling and redness of the joints and high fever. Exquisite tenderness was a striking feature. Sometimes the jar caused by walking in the room would increase the pain. Usually laid up two or three months at a time; once confined to the house for nearly six months. Fever at times for two or three months. Heart never involved. On account of lameness has taken very little exercise during the past two or three years. Rarely walks up stairs owing to lameness.

Trouble began originally in the ankle. For three or four years the inflammation never extended above the knees. In the first attack there was great swelling of the ankle and leg. Skin tense and dark red—and exquisitely tender. Has had twenty-five pillows sometimes under him at one time. In one attack all the joints of the body were affected, the jaws and all the muscles except those of the eyes and mouth. The pillow under his head was not touched for twenty-four hours, owing to pain on moving his neck. Improvement followed a severe sweat. This attack lasted about six weeks.

In the last attack, which lasted a week or ten days, the whole right hand was involved. That was about two months ago. About two months before that the feet were affected—sometimes the instep, sometimes the outer side of the foot, never the great toe. Formerly the knee and calf of both legs would swell. Pain usually worse about 8 P. M. than at any other time—but more severe during the night than during the day. Has never been given colchicum to his knowledge. For ten years has taken two grains of morphine a day. He acquired the habit in attempting to get relief from the pain. Up to two years ago took alcohol freely.

For three or four years he has had swelling of the left lower leg and left foot. The extent of the swelling depended on the amount of walking he did. For years has been unable to get down on his knees. For twenty years he was more lame than he has been during the past two years. About seven years ago a nodule developed on the fourth toe of the right foot, projecting above the surface. It was the size of a split pea. It ruptured and discharged material that looked like chalk and thick mucilage, but not well mixed. For more than a week the doctor came and scraped the lesion down to the bone. A sinus persisted several years.

About two years ago two nodules formed in the skin on the pinna of the right ear, two or three times the size of a grape seed, of whitish color, containing chalk-like material. Another physician was then in attendance, but he still adhered to the diagnosis of rheumatism after the tophi formed in the ear.

The left olecranon bursa has been distended with solid material for three years. Inflammation and distension were frequent for ten years prior to that. For weeks at a time has had both arms suspended in slings.

Status Præsens.—Patient is a tall, strongly built, fairly well nourished man. Muscles flabby. Subcutaneous fat abundant over the abdomen. No pallor of the mucous membranes. Lungs normal. Enlargement of the heart to the left. A systolic murmur replaces the first sound at the apex. Aortic second sound not definitely accentuated. Blood pressure: Systolic, 220; diastolic, 110. No tophi in the ears. On the outer side of the left elbow is a small sack filled with hard irregular masses like pebbles. It projects about 2 cm. beyond the olecranon, and is about 3 cm. wide. Near this mass in the subcutaneous tissue of the elbow are several similar nodular masses about the size of split peas. No deformity of the other joints.

The blood contained 2.1 grams of uric acid on a purin-free diet, but seventy-two hours after eating 160 grams of sweetbreads the amount had increased to 3.4 grams. The uric acid in the urine on a purin-free diet was abnormally low. The urine was free from albumin at the time of my examination, but tube casts were present.

In this case the severity of the pain, the tenderness of the affected joints, the redness and the great swelling, the age of onset, the alcoholic history, the freedom from endocarditis, the existence of hypertonia, all were characteristic of gout and not of rheumatism.

Genuine gout is rare in women. All but one of my twenty-one cases of undoubted gout in which the uric acid was determined in the blood have been in males.

In this country the hereditary form of the disease is far less common than the acquired.

The influence of alcohol in causing gout was known to the ancients. A Greek poet described gout as the daughter of Bacchus and Venus. Fermented liquors are the chief predisposing cause. Only two of my patients were teetotalers, and nearly all had taken alcohol freely. Porter and heavy wines, especially port, predispose to gout. Possibly the freedom from gout in America is due to the fact that light beer and whiskey are the alcoholic drinks chiefly used. Gout was rare among the workers in Scotland and Ireland, where whiskey is the chief beverage and at the same time remarkably common among a body of men in London, called ballasters, derived from the peasantry of Ireland who did heavy work on the Thames. These men according to Budd[20] drank two to three gallons of porter daily.

An excess of animal food and a sedentary life have long been known to favor the development of gout.

The relation between lead poisoning and gout was first pointed out by Garrod.[18] He recognized that lead alone did not powerfully predispose to gout, as women engaged in white lead factories who often suffered from colic rarely had gout. Our experience points to the same conclusion. Although gout is rare, lead intoxications in their milder forms are common. The manifestations of gout among workers in lead have been especially studied by Lüthje[21] who describes a "lead gout" with a characteristic clinical course. The disease begins at a relatively early age and quickly involves many joints. The tendency to tophi formation and joint deformity is more marked than in ordinary gout.

The term *chronic gout* is given to those cases in which the attacks are frequent and deformity or rigidity of the joints occurs. The signs of acute inflammation are less than in the acute disease but the duration of symptoms is longer. In fact suffering and disability may be constant. In chronic gout chalk-stones are apt to form. They are not found in any other disease. Although the most common site is the helix of the ear, they are often observed on the fingers and toes. A microscopic examination of material from nodules thought to be tophi should always be made. The beautiful acicular crystals of sodium urate are easily demonstrated. The frequency with which sodium urate is deposited in the olecranon and prepatellar bursæ is not generally recognized. Inflammation of these bursæ is almost pathognomonic of gout. In many cases the olecranon bursa on each elbow becomes converted into a hard rounded mass several centimeters in size.

Radiograms in Gout.—In chronic gout the X-ray is often an aid in diagnosis as characteristic changes in the bones frequently occur in this disease. These consist of small dark areas on the plates, circular in outline, with clear, sharp borders. They are usually found in the epiphysis of the affected joints, especially of the fingers, and are due to the absorption of bone from areas in which sodium urate has been deposited.

The Urine in Gout.—When a gouty patient is on a purin-free diet the uric acid output is often low in the interval between attacks but rarely below the limit of normal, which is placed at 0.3 gram per day. That patients with chronic gout excrete less uric acid than normal was known to Garrod, but the error is still widespread that the urine of gouty patients contains a large amount of uric acid.

For the day or two preceding an acute attack a fall in the uric acid output below the usual level has been found to occur. This is followed by a marked rise early in the attack and a secondary fall.

Uric Acid in the Blood.—The evidence is conclusive that the uric acid is usually notably increased in gouty individuals in the intervals as well as during attacks. The average amount in my twenty-one cases of genuine gout irrespective of diet was 3.7 mg. per 100 grams of blood. In 156 non-gouty cases studied by Adler and Ragle[22] the average amount was 1.7 mg.

In a few cases of undoubted gout the uric acid in the blood was within normal limits, but even in these cases on a purin-free diet it was never below 1.4 mg.

The *sweetbread meal* has proved of aid in diagnosis. The patient is placed on a purin-free diet, and the daily output of uric acid in the urine determined. After having been on this diet for at least four days the blood is analyzed for uric acid and 150 to 300 grams of sweetbread (weighed raw) are fed. The purin-free diet is then resumed. The blood of a gouty subject forty-eight to seventy-two hours after the sweetbread meal has shown, in the few cases examined, an abnormally high amount of uric acid, while in control subjects this was not found. It is not improbable that this rise in the uric acid content of the blood may also occur in certain cases of nephritis and possibly in other pathological conditions.

Recent investigations have modified previous ideas regarding the excretion of exogenous purins, but it is a fact that the feeding to a normal person of food rich in purins, such as sweetbreads, is followed by a striking increase of short duration in the excretion of uric acid. In gouty subjects the increased output is usually delayed and diminished. This disturbance of uric acid metabolism also occurs sometimes in nephritis, and it has been observed by Pollak in chronic alcoholism. Pain or acute inflammation in the joints, developing a day or two after the sweetbread meal, is very suggestive of gout.

The subjects of chronic gout according to Friedrick Müller[23] are more susceptible than normal persons to uric acid. Workers in his laboratory found that subcutaneous injections of diluted solutions of sodium urate produced stronger inflammation in gouty patients than in normal persons.

Therapeutic Tests of Diagnostic Value.—The prompt relief from pain, produced by colchicum in gout is so striking that many have asserted that this drug is a specific in gout. It is certainly an aid in diagnosis, as colchicum does not relieve the pain in acute rheumatism or in other conditions which may be confounded with gout. Salicylates rarely have any marked effect in controlling the pain of acute gout.

The relief of the severe pain of gout by atophan is even more striking than that produced by colchicum. Its value in diagnosis is probably less, as it often is of considerable aid in checking the pains of non-gouty arthritis.

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TREATMENT OF GOUT.*

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THE treatment of gout is directed toward the correction of a disordered purin metabolism, in which uric acid plays an important part and is therefore the point of attack for the internist.

During the past few years improved methods of estimating the uric acid content of the blood and urine have enabled us not only to strengthen the diagnosis of gout, but to determine that a vast number of supposedly gouty conditions, such as arthritis, neuritis, neuralgia, lumbago and numerous painful conditions, were not accompanied by retention of uric acid in the blood.

For a positive diagnosis of gout two conditions are necessary; clinical symptoms and an accumulation of uric acid in the blood and joints.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

TABLE NO. I.

APPLICATION OF BLOOD URIC ACID DETERMINATION IN DIFFERENT DIAGNOSIS.

Condition	*Case*	*Uric Acid of Blood mg. per* 100 *c.c.*
Typical Gout	T. B.	8.4
Typical Gout	H. L.	7.8
Typical Gout	M. K.	9.5
Incipient Nephritis	D. S.	6.7
Incipient Nephritis......	B. D.	7.7
Incipient Nephritis	H. J.	6.0
Infectious Arthritis	A. M.	2.0
Infectious Arthritis	E. C.	2.5
Infectious Arthritis	J. H.	2.0
Neuritis	J. H.	1.5
Neuritis	A. K.	2.1
Neuritis	C. K.	1.2

Whether uric acid retention is the cause of gout or is an index of the retention of some unknown substance which is the etiological factor is only of academic interest. The important point for the internist is that the improvement in the condition of the patient is accompanied by a corresponding reduction of the uric acid in the blood.

The aim of treatment is two-fold; first, to prevent the formation of uric acid and secondly, to facilitate its elimination.

Patients with a gouty tendency should avoid a sedentary life and should take light exercise such as golf, walking, horseback riding and indoor gymnastics. The skin and muscles should be kept in a healthy condition by massage, baths with friction rubs and an occasional Turkish bath.

The dietetic treatment of gout is based upon the estimation of the patient's ability to eliminate exogenous uric acid his endogenous excretion of uric acid having been previously determined. The purin free diet given in table No. 2, has been found useful for this purpose. After the patient has been on this diet for three days fairly constant values for endogenous uric acid are obtained. The amount of uric acid above this figure found in the urine when the patient is taking purin is exogenous. A persistent daily output of less than .35 mg. of endogenous uric acid establishes a diagnosis of gout.

TABLE NO. II.

PURIN FREE DIET.

Breakfast: Apple or banana, cream of wheat or farina, with cream and sugar, one egg, cup of cereal coffee with cream and sugar, toast with butter.

Dinner: One egg, baked potato with butter, string beans, rice or macaroni, baked apple with sugar, glass of milk.

Supper: Rice with butter, cream cheese, bread with butter, stewed pears or rice pudding.

Following the suggestion of Von Noorden the uric-acid-forming possibilities of various meats are given in Table No. 3. One hundred grams of lean roast beef produces .14 mg. of uric acid of which approximately 50 per cent is excreted, respectively, in the urine and feces. By determining, according to the suggestion of Von Noorden, the eliminative capacity of the body for exogenous uric acid, it is possible to keep the daily intake of purins well within this limit. On the other hand, Umber has advised determining the number of days required to eliminate the uric acid arising from a definite amount of purin substances and limiting the ingestion of such substances to intervals which prevent the retention of uric acid. This method emphasizes the importance of interspersing purin-free days in the diet so as to insure the complete elimination of exogenous uric acid. As these procedures necessitate the accurate collection of twenty-four hour specimens of urine and the careful estimation of the uric acid content of specified diets, they have proved cumbersome and are being superseded by the simpler procedure of examining the blood for uric acid. The amount of uric acid reduction in the blood obtained by placing the patient upon a purin free diet is shown in table No. 4.

TABLE NO. III.

ACCESSORY DIET WITH ARTICLES OF FOOD WITH KNOWN URIC ACID EQUIVALENTS.

100 g. roast meat (beef, veal, lamb, pork, mutton or ham).
100 g. salmon.
70 g. beefsteak or veal cutlet.
200 g. fish, lobster or crab.
2 dozen oysters.
1 spring chicken.
75 g. lentils.
155 g. spinach.
220 g. peas or beans.

TABLE NO. IV.

EFFECT OF DIET AND DRUGS ON BLOOD URIC ACID. ILLUSTRATIVE CASES.

	T. B. Gout		H. L. Gout		G. C. Gout		F. S. Hysteria	
	Before	After	Before	After	Before	After	Before	After
Purine Food	3.3	5.5	6.4	8.5	5.5	6.3	..	..
Salicylates..	4.4	1.4	..	..	..	..	4.0	0.8
Atophan ...	4.4	2.5	..	..	..	..	..	..
Saloxyl	..	..	..	..	5.5	2.4	..	..
Radium ...	4.0	4.1	..	..	..	..	..	..
Colchicum..	4.4	4.4	..	..	..	..	4.0	3.5
Quinine	..	..	..	..	..	..	4.1	5.0
Diuretin ...	4.4	5.3	..	..	..	..	4.0	4.1

In the dietetic management of gout the uric acid content of the blood should be determined with the patient on a mixed diet, then the amount that this figure can be reduced by a purin free diet should be ascertained. By this procedure a reduction of .2 mg. of uric acid per 100 c.c. of blood is frequently noted. To obtain a constant figure the blood should be taken before breakfast. By the careful addition of small amounts of purin to the diet the patient's tolerance for uric acid can be determined.

In prescribing a permanent diet it is well to keep the purins within the patient's eliminative capacity and to interpose purin-free days at frequent intervals.

The best results are obtained by giving a well balanced diet, particular care being taken to maintain the patient's strength. An excess of carbohydrates results in a glycosuria, while too large an amount of fats induces obesity, which places too great a strain upon the heart and arteries. An initial condition of obesity should likewise be corrected. For a patient weighing 150 pounds a daily intake of seventy grams of protein, derived largely from vegetables, 200 grams of carbohydrates and 150 grams of fat yielding approximately 2,500 calories is necessary to maintain bodily vigor. As the uric acid forming possibilities of red and white meats as well as of fish are identical no distinction need be made. Boiled meats contain less of the precursors of uric acid than those which have been basted.

The intake of sodium chloride is limited because sodium salts favor the deposition of urates in the tissues. Coffee, tea and cocoa, owing to their purin content, should be used sparingly, if at all. Alcohol in any form interferes with the elimination of uric acid. The condiments irritate the kidney in the process of elimination and should be avoided. It is well known that strawberries, oranges, bananas, cucumbers and tomatoes intensify the symptoms of gout. Water is one of the best eliminants of uric acid. Better results are obtained from the use of saline mineral waters than from alkaline mineral waters. The daily administration of a small amount of alkalies favors the deposition of uric acid in the tissues, although such treatment does tend to prevent the deposition of the uric acid of the urine.

There is evidence to show that uric acid is not affected by the salts of lithium. Table No. 4 shows that atophan, salicylates and saloxyl deplete the blood of uric acid and that radium, colchicum, diuretin and quinine have no effect. It has been shown that the lowest level of uric acid in the blood is obtained after three days' administration of atophan. Atophan is best given in half-gram doses with water and sodium bicarbonate four times a day. Although there is a return of uric acid in the blood to its former level a few days after the discontinuance of atophan it is beneficial to produce periodic reductions. Many patients are kept well by taking atophan during the first four days of each month. The salicylates produce just as great reduction in the uric acid of the blood, but owing to their irritating effect on the kidney should be given guardedly in renal conditions.

For the acute attack of gout colchicum is the sovereign remedy. Thirty minims of the tincture of colchicum should be given with fifteen minims of citrate of potash every four hours until the distressing symptoms are relieved. It should then be discontinued at once, because of its depressing effect. The use of colchicum should be limited to the attack, as it has no effect on the purin metabolism at any other time and is of no value in preventing uric acid accumulations in the body. The bowels should be kept well open and large amounts of water ingested. Local applications of oil of wintergreen or menthol give great relief.

There are many preparations, of which pipirazin is a fair sample, which dissolve uric acid in a test tube, but, unfortunately, have no effect in eliminating uric acid in the body.

THE METABOLISM IN GOUT.*

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FOR the consideration of the metabolism of gout the endeavor will be made to answer two questions which bear upon the pathogenesis of this interesting disease. These questions are: (1) What is the cause for the increase of uric acid in the blood in gout? (2) What is the explanation for the deposition of uric acid salts in cartilages? These questions epitomize the pathogenesis of the disease.

First then as to the causation of an increase of uric acid in the blood; there seems on the face of this question to be several possibilities. The increase might be due to an augmented formation, or perhaps to diminished destruction, or again to a defective elimination through the kidneys. Now let us examine the sources of uric acid production. This subject has been exhaustively investigated and our information at present is fairly complete. When we consume protein food this consists largely of cellular protoplasm, a small fraction represents the cell nuclei. The protoplasm is mainly simple protein; the nucleus is characterized by an especial protein—nucleo-protein. To protein we need here give no attention, the nitrogen of its molecule ends in metabolism as ammonia and leaves the body as urea. It has little to do with uric acid. Nucleo-protein, on the other hand, is broken down by a succession of cleavages through nucleic acid, to a final stage, the purin bases. The more important among these purins are xanthin, adenin, guanin and hypoxanthin. All of these steps are effected, you are to understand, by enzymes which can be demonstrated in various organ extracts. Now again we find other enzymes, each apparently differentiated and specific for its function, and these enzymes produce further changes in the various purin bases. One acts by hydrolysis, converting adenin into hypoxanthin,

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* Read at the Annual Meeting of the Medical Society of the State of New York at Saratoga Springs, May 17, 1916.

$$C_5H_5N_5+H_2O=C_5H_4N_4O+NH_3$$

another acts as an oxidase and the hypoxanthin is oxidized to xanthin.

$$C_5H_4N_4O+O=C_5H_4N_4O_2$$

A third acts upon guanin and xanthin results.

$$C_5H_5N_5O+H_2O=C_5H_4N_4O_2+NH_3$$

Again an oxidase acting upon xanthin effects a further transformation into uric acid.

$$C_5H_4N_4O_2+O=C_5H_4N_4O_3$$

The enzymes which are responsible for these various changes in the purin are found in the organs of all mammals; not in all organs, but they occur chiefly in the liver and kidney.

This explains the mode of origin of uric acid but does not disclose the factors which influence the quantity produced. As to the amount produced, you understand in the first place two main sources—nuclear substances and purin-bases enter the body as foods, sweetbreads and stock soups, for example. This source we call exogenous in contrast to that which takes origin in the body itself from nuclear products of worn out tissue cells, muscle waste, et cetera. The exogenous source, that is the food, can be controlled, one can live on a purin free diet; but the endogenous source is concomitant with life. So long as there is vitality, cells will act, will be worn out and the refuse of the nuclear part will go to the production of uric acid. This seems to be the main source of the endogenous supply. Now if we examine this endogenous source a little more closely we can clear up some points that have confused clinicians. Among the most active glands in the body are those related to digestion—the glands in the digestive canal, liver, pancreas. We also know that some foods require more digestive activity than others do in order to reduce them to the ultimate substances fit for absorption in the blood. For example, glucose requires no enzyme action at all, starches only a little, egg albumen somewhat more. Now it has been shown pretty conclusively that uric acid production is influenced by the extent of the demands made upon the digestive glands. The foods used, you understand, in these experiments are purin-free, such substances as cream, starch, egg albumen, agar-agar, etc. And when the simpler foods, chemically speaking, are fed the uric acid excreted is decidedly less than when the digestion demands are more onerous. Further, the experiment can be clinched by employing drugs. Pilocarpine stimulates gland activity and atropine inhibits it. After administering pilocarpine the uric acid excretion increases for two or three hours. On the other hand, if a diet whose effect is known be given after atropin has been administered, there is a delay in the uric acid formation until the effect of the atropin has worn off. The conclusion is that one factor which determines the amount of uric acid produced is the work of the digestive glands. Foods demanding more glandular activity in that way increase uric acid formation. The explanation is simply that cells that do work wear out and the nuclear substance is broken down to form purins.

The question of the syntheses of uric acid in the human organism need not detain us. Synthesis does occur with birds, but there is no evidence to suggest the possibility with mammals. I did a deal of experimental work on this question several years ago but without disclosing a fact that could be interpreted in any way as evidence pointing toward the synthetic formation of uric acid or purins as such.

THE DESTRUCTION OF URIC ACID IN THE BODY.

Thus far we have considered formation of uric acid. Now we know that with many mammals the pre-formed uric acid is in large part oxidized within the body. Dogs, for example, have very little uric acid in the urine; but instead allantoin is excreted which is an oxidation product of uric acid.

$$C_5H_4N_4O_3+O+H_2O=C_4H_6N_4O_3+CO_2$$

But in human urine there is only a trace of allantoin. Evidently then this form of uric acid destruction does not occur in man. The problem has been approached from another experimental aspect. Emulsions of liver and of kidney of all mammals except man destroy uric acid. This enzyme in these tissues, uricase, has eluded detection in human tissues, and many biological chemists believe that it is not present in men. It is not found in the avian and reptilian species and in this respect man is not more developed biologically than birds.

Another bit of evidence which indicates that uric acid destruction cannot take place to any appreciable extent in man is the fact that uric acid injected into the blood is recovered almost *in toto* from the urine. We find ourselves then in this situation, that, while like other mammals man forms uric acid from several sources of purins, unlike other mammals man possesses no enzymes, no uricase, to effect its destruction. As a corollary then all the uric acid formed must be excreted.

It seems highly probable that nucleic acid may undergo disintegration in two ways: one path leads through purins to uric acid; the other path of destruction is not understood in its various steps. The reason for believing that nucleic acid may undergo disintegration without passing through the purin stage is that administration of nuclein does not lead to the theoretical yield of uric acid.

This conception at once helps us to answer our first question as to the causes of an increase in the uric acid in the blood of gouty subjects. This increase is not due to a failure of the destructive processes since in man there is no destructive enzymes. It is not due to an increase in formation, since we seem to know all the sources of uric acid and cannot incriminate any of them. Is the increase in the blood due then to a failure in excretion? We are at once reminded that the typical phenomenon in gout is the low excretion of uric acid in the urine in the intervals between attacks and of the second clear cut clinical sign that when purin containing foods are eaten there is no corresponding increase in the uric acid recovered from the urine. This would appear as though there were a defect in excretion.

The uric acid curve in chronic gout is familiar to you all. During the intervals between attacks the amount of uric acid in the urine is below normal. With an acute gouty arthritis there is a sudden flooding out of the surplus then a slow return to the subnormal level.

So now the essential facts that confront us in gout are these: a subnormal excretion of uric acid accompanied by a constant retention in the blood. In brief all the evidence at our disposal points to a defect in renal function as one of the causal factors of this disease. It is no new conception to regard gout as essentially a kidney disorder, yet by no means all students of this disease are committed to this view. Perhaps the evidence requires summarizing at this juncture. In favor of the hypothesis that gout is due to kidney disorder is the uricæmia and the deficient excretion. Besides this we know that disturbances in uric acid excretion can be found early in renal diseases before there is any defect in other renal functions. Finally the gouty kidney has long been known and the fact that gouty patients are peculiarly prone to develop nephritis. Now, what in the main are the objections to this hypothesis? The chief stumbling block it seems to me is this: nephritis of the type demarked by defective uric acid excretion (azotemia) is exceedingly common; the conditions of affairs with these patients in respect to blood and urine is strictly comparable to gout, but articular gout as a complication of nephritis is relatively uncommon. In brief if gout is essentially renal why is it not a more common complication with nephritics? The question cannot be answered at present. Perhaps further investigation will give better evidence than we have now at our disposal.

The essential feature of gout is the arthritis, and this arthritis is caused by, or accompanied by, deposition of urates in the cartilages. Since there is an increase of the urates in the blood it was natural that early students of this disease fell into the error of regarding tophi as a deposition of crystals from a saturated solution in the blood. This view is no longer tenable, Uricemia occurs with several disorders, notably with chronic nephritis, and with chronic nephritis the uric acid content of the blood much exceeds the values commonly noted with gout. In the second place the blood plasma is a much better solvent for sodium urate than is water and the amount that can be dissolved in plasma before saturation is secured exceeds any amount noted in disease. There cannot be then, in gout, a deposition in cartilage from the saturated blood because the blood is not saturated.

In an endeavor to elucidate this final step in the production of gout many theories have been put forward. They are of some interest historically but of no value scientifically. Rather than indulge in these self-deluding speculations it seems to me better to state frankly that our knowledge is incomplete and that we understand gout only in part and that its peculiar specific factor has not been disclosed. Personally the most attractive explanation to me is that urates may exist in the blood in two states, one free and one in some organic combination. This was Minkowski's idea and Benedict has demonstrated the fact for some mammalian bloods.

One may then summarize the facts which bear upon the metabolism in gout in this way: The uricaemia is not due to abnormal production of uric acid, neither is it due to a defective destruction; it may be due to defective excretion. From this it is evident that the disease is due primarily to a defective renal function. The retention of uric acid is not peculiar to gout but is more pronounced with this disease. Due to unknown condition, a deposition of urates from the blood into cartilage occurs. Why this phenomenon does not occur commonly in nephritis but does occur with gout is unknown.

THE DETERMINATION OF URIC ACID IN THE BLOOD AND REMARKS CONCERNING ITS VALUE.[*]

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THE publication of the Folin-Denis method for determining the uric acid of the blood may justly be regarded as an epoch in the development of the physiology and pathology of uric acid metabolism.[1] The method commonly employed had involved the use of 300 c.c. of blood, from which by a tedious process in the course of several days the uric acid was isolated. At best only approximate results could be obtained. Folin's method called for but 25 c.c. of blood and the determination could be completed in a day. In the hands of Folin and his co-workers this procedure appeared to yield practically quantitative results, although many users of the method were unable to report such favorable experiences.[2] Many of the difficulties inherent in the method of Folin and Denis were analyzed by Benedict,[3] who introduced modifications, which make the procedure, so far as simplicity and accuracy are concerned, little short of perfect. To one who has worked with these methods, Benedict's modification appears hardly less a contribution to the subject than the original Folin-Denis method itself.

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[*] Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

[1] Folin and Denis: *Jour. Biol. Chem.*, 1912-13, XIII, 469.

[2] Cf. Fine and Chace: *Jour. Pharm. and Expt. Therap.*, 1914-15, VI, 219.

[3] Benedict: *Jour. Biol Chem.*, 1915, XX, 629.

The procedure for determining the uric acid of the blood as now carried out in our laboratory requires but 10 c.c. of the blood and may be completed within an hour and a half. The method is as follows[4]:

Ten cubic centimeters of the well-mixed blood are pipetted into a casserole of about 375 c.c. capacity and approximately five volumes of hundredth-normal acetic acid added. The mixture is heated over a water bath and finally brought to a boil over a free flame, stirring continuously. About 4 c.c. of fairly thick alumina cream[5] are added with continuous stirring for a few minutes. The sides of the dish are washed down from time to time with hot water and the mixture then filtered through a hardened filter paper. The coagulum is returned to the casserole with about 150 c.c. of hot water, heated and filtered through the same paper. The combined filtrates are evaporated to 1 or 2 c.c. (the material should be protein-free) and transferred to a 15 c.c. conical centrifuge tube, washing the casserole with two or three small portions of hot water, but keeping the volume at or below 10 c.c.

About fifteen drops of ammoniacal-silver-magnesium mixture[6] are now added, the tube shaken and placed in a cool place (refrigerator) for about fifteen minutes to allow for the precipitation of the purins. The tube is centrifuged, the supernatant liquid decanted off and allowed to rest in inverted position for about five minutes. The tip of the tube is then wiped with filter paper and the ammonia allowed to volatilize (may be facilitated with suction).

For the development of the color prepare a 100 c.c. graduated cylinder for the standard and a 50 c.c. cylinder for the unknown. Five c.c. of the uric acid standard (5 c.c. = 1 mg. of uric acid)[7] are pipetted into the 100 c.c. cylinder.

To the standard are added two drops of 5 per cent potassium cyanid, 2 c.c. of Folin-Macallum reagent,[8] 20 c.c. of saturated (22 per cent) sodium carbonate, and, in about one minute, water to the 100 c.c. mark. To the precipitate in the centrifuge tube are added one or two drops of the potassium cyanid, 2 c.c. of the Folin-Macallum reagent and 15 or 20 c.c. of the saturated sodium carbonate, depending on whether the color is subsequently diluted to 50 or 100 c.c. After forty to sixty seconds dilute with water until the intensity of the color is similar to the standard and then match in the Duboscq colorimeter. The prism of the standard may conveniently be set at the 10 mm. mark.

If the Hellige colorimeter (with zero at top) is to be employed, the standard should be diluted to 50 c.c. instead of 100 c.c., and the following formula employed:

$105 - R \times 0.0198 =$ mgms. per dilution of 100 c.c.

Because of the difficulty of obtaining the Hellige instrument, we have been using a simple apparatus consisting of a box and two carefully selected comparison tubes.[9] (See Fig. 1.) For this instrument only 5 c.c. of blood need be taken and the determination carried out as described above. The colors are developed and compared as follows:

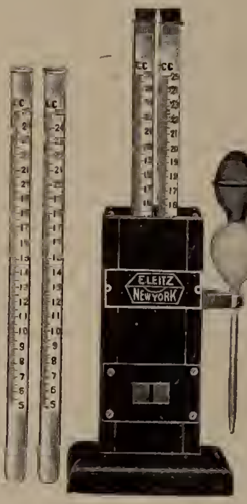

Fig. 1.

For the standard tube 1 c.c. of the uric acid standard (1 c.c. = 0.2 mg. of uric acid) are pipetted with an Ostwald pipette into the left-hand tube. To this are added one drop of 2.5 per cent potassium cyanide, 0.5 c.c. of modified Folin-Macallum reagent, 5 c.c. of saturated (22 per cent) sodium carbonate, and, in about one minute, water to the 10 or 20 c.c. mark, depending on the depth of color of the unknown. To the precipitate in the centrifuge tube are added one or two drops of the potassium cyanide, 0.5 c.c. of the Folin-Macallum reagent and 5 or 10 c.c. of the saturated sodium carborate, depending on the depth of color. Pour in right-hand tube, and after forty to sixty seconds dilute with water until the intensity of the color is identical with the standard. Add the water with the diluting pipette, washing out the centrifuge tube. Invert the tube after each addition of water.

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[4] See Myers and Fine: *Arch. Int. Med.*, 1916, XVII, 574.

[5] Prepared by precipitating an 8 per cent solution of aluminum acetate in acetic acid with sodium bicarbonate, carefully washing with a large volume of distilled water by decantation several times, then filtering.

[6] The ammoniacal-silver magnesium solution is prepared by mixing 70 c.c. of 3 per cent silver nitrate solution, 30 c.c. of magnesia mixture and 100 c.c. concentrated ammonia. Any turbidity which may develop is filtered off. Magnesia mixture is prepared by dissolving 35 gm. magnesium sulphate and 70 gm. ammonium chlorid in 280 c.c. distilled water and then adding 140 c.c. concentrated ammonium hydroxid.

[7] The standard uric acid solution is prepared as follows: Dissolve 9 gm. pure crystalline hydrogen disodium phosphate and 1 gm. dihydrogen sodium phosphate in 200 to 300 c.c. hot water. Filter and make up to about 500 c.c. with hot water. Pour this warm, clear solution on 200 mg. uric acid suspended in a few cubic centimeters of water in a liter volumetric flask. Agitate until completely dissolved. Add at once exactly 1.4 c.c. glacial acetic acid. Make up to 1 liter, mix and add 5 c.c. chloroform. Five cubic centimeters of this solution are equivalent to 1 mg. uric acid. The solution should be freshly prepared every two months.

[8] The reagent, as modified by Prof. S. R. Benedict (private communication), is prepared by boiling 100 gm. sodium tungstate, 20 c.c. concentrated hydrochloric acid and 30 c.c. 85 per cent phosphoric acid in 750 c.c. distilled water for two hours, preferably under a reflex condenser, and then making up to 1,000 c.c. with water.

[9] See Myers: *Jour. Lab. and Clin. Med.*, 1916, I, 760.

To calculate the mg. of uric acid per 100 c.c. of blood, use may be made of the following formula, in which S represents the strength of the standard (1 or 2 mg. to 100), D the dilution in c.c. of unknown required to match the standard, and B the amount of blood employed in c.c.

$$\frac{S \times D}{B} = \text{mg. uric acid per 100 c.c. of blood.}$$

If, for example, 5 c.c. of blood are employed, with standard the equivalent of 1 mg. to 100, and the dilution of unknown required to match standard is 17 c.c. the formula will work out as follows:

$$\frac{1 \times 17}{5} = 3.4 \text{ mg. to 100 c.c.}$$

Until about a year ago, it was generally considered that normal human blood contained 1 to 2 mgm. per 100 c.c. and gouty blood 4 to 6 mgm. Since the introduction of Benedict's modification of the original Folin method, we have rarely noted figures below 2 mgm. for apparently normal individuals, nor below 6 mgm. for gouty patients.

Emphasis should be placed on the observation that despite the common association of uric acid and retention with gouty symptoms, a high blood uric does not necessarily indicate gout. Similar accumulations of uric acid may be noted in the early stages of nephritis, where gouty symptoms are absent, and therefore great care should be taken to exclude nephritis before regarding such retention as evidence of gout.

The determination of the uric acid concentration of the blood may be an aid in the differential diagnosis between gout and the non-gouty arthritides if our newer standards of comparison are kept in mind. It should be emphasized, however, that arthritis complicated with early interstitial nephritis may have exactly the same blood picture as found in gouty conditions.

The method as carried out at present has made it possible to eliminate the large and unaccountable variations frequently noted on successive examinations by the original Folin-Denis method.

Discussion.

Dr. Nathaniel Bowditch Potter, New York City: I think we ought to be congratulated upon the opportunity of listening to this splendid, orderly presentation of so interesting a subject.

With this most interesting information, so advanced and so thorough, which we have just received, perhaps it is well to emphasize one or two minor points which may be of use to the general practitioner. I should like to emphasize more strongly than Dr. Pratt did, the use of colchicum in acute gout. Personally, I use a colchicine tablet, one that I know is active, for many are not. I always give it until either there is a relief of symptoms or actual toxemia result. I believe it is a therapeutic test for acute gout.

Another simple test, perhaps even of more value, is the use of large amounts of a food rich in purins, like sweetbreads. The sweetbreads should be eaten for two or three continuous days in relatively large amounts. In the gouty, at least minor symptoms will be precipitated.

Chronic gout is more difficult to diagnose from the varied symptoms alone than acute gout, perhaps because the former is mixed, even in its pathology. Some illustrative points were given last July in the "Archives of Medicine." One has occurred so frequently in my clinical experience that I wish to illustrate it in detail, and this is the importance of minor infections in gouty people.

A patient with acute and chronic gout, whom I have followed for fifteen years had an abscess at the root of one of his teeth. In the middle of December it was treated by his dentist, lanced, and he was free from discomfort. The dentist requested him to return shortly for further treatment. Before Christmas he began to have chronic gout of an aggrevated form. He has had more gout this winter than for many years, but radical treatment of his marked pyorrhea has relieved him far more than any other measures.

A young man who inherited a wine cellar and gout was referred to me at the end of a long cure at one of the celebrated spas of this country—also at the end of his rope. Upon going into his history carefully I found that he had chronic tonsilitis and dental infection, one of the most deplorable infections which I have ever seen. The treatment, first of his teeth, and later the removal of his very badly infected tonsils, has materially relieved his so-called gouty symptoms.

I think infection plays as big a part in gout as in diabetes and in nephritis. That, then, would be the first point of my treatment in gout. My second is to improve the circulation.

Dr. Nellis B. Foster, Ann Arbor, Mich.: I don't think I have very much to add to what I have already said, but I might make one or two comments with regard to lactic acid and its metabolism in gout. I hesitate to touch upon the physiology of lactic acid at the present time. We don't know quite where we stand with regard to it. Dr. Lusk has shown that if you give lactic acid to diabetic dogs, you can increase the amount of sugar in the urine and it is possible that the reversal is true, that sugar may lead to lactic acid. Although I do not believe there is a particle of evidence at the present time it is an interesting theory that the formation of lactic acid might draw calcium from the tissues, and that there is also a part of the body which has a mechanism for neutralizing these acids and has been here suggested.

We are long past the age of accepting ideas which cannot be demonstrated. We may think things are so, but that doesn't prove it and we do not accept anything that we cannot prove as a fact.

Dr. Nelson K. Fromm, Albany: Just one or two questions.

Does Dr. Fine consider Benedict's modification of the Folin-Dennis method to be as accurate as the original? It is surely a great saving in time. We are unable to obtain atophan in Albany, I do not know what the situation is in New York. I would like to ask Dr. Chace what is saloxyl and is it as good a uric acid eliminant as atophan?

Dr. Morris S. Fine, New York City: In answer to the question as to the reliability of the uric acid determination, I may say that in a paper we wrote during the spring of 1914, we confessed that the determination gave us results ten to fifteen per cent. low. In fact, the determination as originally described by Folin, frequently gave us results as much as twenty per cent. low.

These inaccuracies are, however, slight in comparison with those encountered with earlier methods.

Professor Benedict has given this subject very careful study for the past two years and we have made use of all the information that he has acquired in that time. As a result of that study we have a method which can be relied upon to give results ninety-five to 100 per cent. accurate. The old method, then, as we carried it out, was inaccurate by ten or twenty per cent., but I believe we now have a method that can be relied upon.

Dr. L. Duncan Bulkley, New York City: I have myself had gouty attacks off and on for many years, as also several acute kidney attacks. On a number of occasions I have been promptly relieved, even without other medication, by my so-called rice diet, for a number of days, and have also used it in many other cases with great satisfaction: the idea of it is to exclude protein and purin bodies as far as possible from the diet.

The diet consists of rice, butter, bread, and water exclusively, three times daily for from five to seven days. The rice should be eaten hot, with butter and not with sugar and milk, and with a fork and not with a spoon, for half-an-hour or more at each meal, with great mastication. I give half a pint of water, not iced, with each meal, but not when food is in the mouth, and also half a pint of hot water, an hour before the morning and evening meal.

Dr. Arthur F. Chace, New York City: Although it is true that cases of Gout stand infection poorly we should be careful not to attribute the symptoms arising from the absorption of toxines from the streptococcus viridans to uric acid.

Many patients who have been treated for so-called Gout for years find upon examination that they do not have any retention of uric acid but that all their symptoms are due to an absorption of toxines from the root of a tooth or the tonsils.

The differential diagnosis is rendered difficult because of the slight nephritis associated with the infection causing a retention of uric acid in the blood similar to that found in Gout.

As Dr. Bulkley stated it is possible to relieve Gout by placing patients upon a diet of rice but such a diet is apt to produce glycosuria. We should at the same time avail ourselves of the uric acid eliminants.

Dr. Fenton B. Turck, New York: When such excellent work is presented before a society like this, it is sure of a hearty and appreciative reception, especially among those who have devoted themselves to laboratory research.

Scientific findings, very simply set forth and definitely related to the literature of the subject, are so illuminating that in venturing to discuss a clinical phase of the subject, I have no fear of confusing the points at issue. I wish to emphasize, first the advantage of extract free meat in the diet; and secondly the importance of a healthy state of the alimentary tract if the diet is to be effectual in gout, or "goutiness" as Ewart expresses it.

The avoidance of meat in gout, with or without kidney involvement, aids by reducing the intake of purins and extractives. In my feeding experiments, I found that the addition of meat extractives to cultures of intestinal bacteria in the food, aggravated all the symptoms and brought about more pronounced visceral lesions. I have found very useful as a means of diet meat from which extractives have been removed. The meat is ground fine and left standing for 12 hours in cold water; it is then put in a press and the water and juices discarded; it is then cooked by steam under pressure and made up with flavoring into a variety of dishes. The result is a food of high protein composition (50%), easily absorbed, leaving little residue, with a minimum of irritation to the kidneys. This process also removes much of the fat so that products of incomplete oxidation are not to be feared. The second point is to insure adequate functioning of the alimentary tract. For this purpose I have found nothing so effective as colonic lavage with water of high temperature.

ACCIDENTAL HEMORRHAGE AND ITS TREATMENT.*

By JAMES K. QUIGLEY, M.D.,
ROCHESTER, N. Y.

If asked what was the most baffling and at the same time the most dangerous complication in midwifery, I venture to predict a majority of obstetricians would designate accidental hemorrhage, for up to a decade ago there was no emergency incident to the care of the pregnant woman which seemed quite so hopeless, or for which it seemed so little could be attempted, as ante-partum hemorrhage, either frank or concealed, due to placental detachment.

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* Read at the Annual Meeting of the Medical Society of the State of New York at Saratoga Springs, May 18, 1916.

Edgar, in his first edition, says: "There have been no recent advances," and, "the treatment is still unsatisfactory." For this reason and because it has seemed to the writer that there has been a distinct improvement in the treatment and a consequent lowered mortality, with perhaps a little better understanding of the pathology of these cases, that I present this subject for your consideration today, with the report of four cases.

Incidence.—There is a wide difference of opinion as to the frequency of this condition. Many of the earlier obstetricians and midwives even denied its existence. Louise Burgeois is credited with the first report of its occurrence in 1609. Rigby's monograph in 1776 was the first clear description in English differentiating it from placenta previa. In 1817 Princess Charlotte succumbed to accidental hemorrhage. This stimulated the study of this rare complication and led the French Academy of Medicine in 1818 to offer prizes for essays on the condition. A. C. Baudelocque received the first prize, while the silver medal of emulation was given to Madame Boivin. Strange to say her memoir not only disclaims having encountered it; and her experience combined with Madame Lachapelle totaled the enormous number of 42,000 cases, but denied the possibility of its existence, arguing that hemorrhage could not occur within the pregnant uterus sufficient in amount to cause death, because of its already distended condition, and that should it occur contractions would be stimulated which would terminate the case. In other words, that the disease was its own remedy, and that for this reason internal or concealed hemorrhage was less dangerous than the frank variety. There was evidently at this period, and even later, some ground for the contention, either as to its extreme rarity or non-existence, for Velpeau later denied it, and in 156,100 cases at the Dublin Lying-In it had never been observed, while Guy's Hospital reported only three cases out of 22,498. In America earlier teachers and writers like Professor Meigs, for instance, never saw it, while Hodge and other text-book writers described it, but only by quotation and practically ignored its importance. Goodell's essay in 1870 analyzing 106 cases still remains one of the best expositions of premature separation. Since then Holmes, of Chicago, in 1901, reviewed 200 cases and substituted the term "ablatio placentæ" for accidental hemorrhage. Goldstine, in 1910, reviewed 98 cases, and Lobenstine and Harrar, of New York Lying-In, and Dorman, of the Sloane Hospital, have reviewed 47 and 234 cases respectively, and while from time to time isolated reports on the pathology have appeared, it has remained for Williams to call particular attention to these changes and report two additional cases in his excellent monograph published in November of last year.

To return to the frequency as observed comparatively recently, either the condition is becoming better understood and, therefore, more cases are recognized, or it is actually more frequent, or both, the last of which is probably nearer the truth, for many slight cases were formerly unrecognized, and some reporters included only the concealed variety in their compilation. The general opinion up to ten years ago, however, was that it was quite an infrequent complication. As late as 1906 Professor Wright, of Toronto, in reporting a case said: "As these cases are exceedingly rare, I take the liberty of reporting one of great interest." Williams believes it is more frequent than generally thought, and in the last 2,000 cases at Johns Hopkins it exceeded placenta prævia; 17 and 14 respectively, or 1 in 117 cases: Holmes, 1 in 200; E. P. Davis, 1 in 250; Herzfeld, 1 in 536; Lobenstine and Harrar, 1 in 894, and Dorman, 1 in 115 cases.

My very limited personal observation would bear this out, for four unmistakable cases were encountered in a comparatively short time in a small service, one of which was mild and the remaining three more or less severe in character, really of clinical interest. Williams' observations are at variance with other modern statistics, as to the relative incidence of concealed and external hemorrhage. His series of seventeen being all of the latter form, while E. P. Davis' collection of 488 showed 25 per cent concealed. Lobenstine and Harrar reported eight concealed out of forty-seven, and later supplemented this by saying that "in the concealed variety it is quite common for a slight oozing of blood or serum to appear externally."

Etiology.—Trauma, a short cord, or one coiled about the neck and nephritis are given as the chief causative factors. No one of these, however, acting alone will produce premature separation, unless it be trauma, and this is questioned by some. Edgar says that it is questionable whether it can ever occur with a healthy uterus and placenta. Holmes lays greatest stress upon endometritis and gives as predisposing causes renal (albuminuria), arterio-sclerosis and diseases of the placenta.

TABLE I.

Name.	*No. of Cases.*	*Toxæmia and Alb.*	*Fall or Over-exertion.*	*Short Cord.*
Holmes	200	....	67	....
Goodell	106	....	37	6
Lobenstine and Harrar	47	16	5	....
Dorman	158	82	21	18
Williams	17	11	....	....
Hofmaier	215	107	....	....
Gaston				
Bar and Kervily				
Moller				

Veit says, "Disease of the decidua is a factor." Biancardi found decidual degeneration. Hartman found "degeneration of the endometrium and musculature." Ellis-Essen-Möller, "inflammatory lesions of placenta followed by degeneration. These are not constant and may result from other conditions." Williams' last two cases failed to show any pathological changes in the decidua and he is not inclined to ascribe much significance to endometritis, believing its occasional occurrence is only accidental. However, he did find important changes in the musculature macro and microscopically consisting in *infiltration of the uterine wall with blood,* and in one case *the tubes, ovaries and broad ligaments.* This was apparently due to *peculiar arterial degenerative changes with thrombosis.*

He was able to collect twenty cases from the literature of the past four years showing similar changes.

In addition to these Wing, of New York, reported a case with the following description: "The uterus was firm, distended, deeper in color than usual, being a deep purplish red and showing numerous petechial areas. In incising the muscle it was softer than usual; deeper in color as though infiltrated, and bled scarcely at all."

Couvelaire and Brandt, who liken this to the hemorrhages of the brain and liver in eclampsia, ascribe as its cause toxæmia, and Williams concurs in this. Nodular infarcts of the placenta, if extensive, often cause premature separation and hemorrhage. This placental infarction is often an accompaniment of toxæmia, and according to Young is not the result of the toxæmia, but rather is due to interference with the maternal blood supply of the part, for placental infarction may occur in the most marked form, viz., accidental hemorrhage with no evidence of toxæmia.

Ellis-Essen-Möller is responsible for the statement that nephritis is not the cause of the separation, but toxæmia may cause both the nephritis and the hemorrhage. This is analogous to eclampsia. Here again the nephritis is the effect rather than the cause. Rupture of the uterus has been reported in conjunction with accidental hemorrhage, and possibly many cases of uterine rupture were due to the same cause or were later stages of the same condition.

Parity.—In Goodell's series of sixty-four cases in which the parity of the patient was stated only eight were primaparæ. This accident occurs usually near term, rarely earlier than the seventh month, and usually during the ninth or over term. Eighty of eighty-nine of the above series occurred later than the seventh month.

Symptoms.—Symptoms of accidental hemorrhage depend upon whether the hemorrhage is concealed or revealed, for the two conditions are quite distinct. The typical picture of concealed hemorrhage is sharp, piercing, abdominal pain, with or without the history of trauma, which may have occurred only shortly previous, or some days this pain is usually constant, but may be cramp-like. The patient's condition is at once seen to be serious; there may be syncope. The severity of the symptoms and the woman's alarming condition are not always due entirely to loss of blood, but partly to shock dependent upon pain and the pressure to which the uterus is subjected. In a case reported by Wright severe tearing abdominal pain was followed by collapse. Improvement followed in a few hours and fours days later, following a spontaneous still birth, there was passed a clot representing about a pint of blood, not enough in itself to have caused such alarming symptoms.

Concealed hemorrhage under pressure like ectopic abortion seems to cause more shock in proportion to blood loss than does free hemorrhage. The rapidity of the pulse alone is not a trustworthy guide as to the amount of hemorrhage. In two of the cases reported below the pulse was eighty or under, but in one thready and scarcely perceptible, and in the other of poor quality.

The uterus is tense, in some cases boardlike, and the cervix very hard. It is extremely tender over the site of the separation and a tumor mass in some cases appears. This enlargement of the uterus may increase as in Case 2. In severe cases fœtal movements are tempestuous and then cease; the fœtal heart is difficult or impossible of location.

The reasons for non-appearance of the hemorrhage below are:

First: Some cases are entirely retroplacental; that is, the placenta remains marginally attached.

Second: Rupture into the amniotic sac may occur high up.

Third: Ball-valve action of presenting part, plugging pelvic inlet.

In the external variety pain may be absent or slight, and the flowing slight and persistent or of a flooding nature, in which case collapse supervenes, air hunger develops, and the patient goes on and dies unless delivered. In the combined cases the uterus at the site of the hemorrhage may be boggy instead of being of a rigid consistency.

Completion of the third stage with the patient in fair condition does not mean that the fight is won, for the possibility of post-partum hemorrhage is still present.

Berkeley and Bonney say, "Post-partum hemorrhage may ensue. When it does occur it is an event of the greatest gravity and even without it many of the patients succumb to shock soon after delivery."

E. P. Davis says, "Should the patient escape death during delivery, post-partum hemorrhage is often severe and may turn the scale."

Williams, "In some instances the tonicity of the uterus is so impaired by loss of blood and distension that it fails to contract and profuse post-partum hemorrhage follows. This possibility must be borne in mind, and the operator have in readiness material for packing."

In Dorman's article out of nine illustrative cases with detailed histories, three died of postpartum hemorrhage (or possibly shock), in each case with a packed uterus.

Does not the pathology mentioned above account for these uncontrollable hemorrhages?

Differential Diagnosis.—Placenta prævia—the only absolute positive evidence of this condition is the palpation of the placenta through the cervix. There are certain clinical differences, however, worth noting.

In placenta prævia hemorrhages are rarely sudden, but more often preceded by spotting. There is no pain or tenderness, no rigidity of the uterus or accessory tumor formation, the presenting part is high and not easily palpated per vaginam, and the gravity of the patient's condition is in some measure in proportion to the blood loss, which is always external.

Rupture of the uterus probably more nearly resembles concealed hemorrhage than any other condition, and the fact that shock is responsible for the symptoms of the latter condition, as well as hemorrhage, makes a differentiation difficult and sometimes impossible. Attention has already been called to the fact that the two conditions may be associated. In general, it may be said that rupture is preceded by labor pains, that the uterus is relaxed and not boardlike, that the fœtus may be located by abdominal palpation outside the uterus, and that vaginally there is a recession of the presenting part.

Among other conditions to be thought of are ruptured appendix, gall bladder, or peptic ulcer or renal colic.

I encountered two cases in the literature where a primary diagnosis of acute indigestion was made.

Prognosis.—As intimated in the opening paragraph, this is always grave. The mortality is the highest for both mother and child of any obstetrical complication except rupture of the uterus.

The average maternal mortality of 530 collected cases of Goodell, Holmes, Goldstine, Lobenstine and Harrar and Dorman is 22.6 per cent. For the infant the average mortality of 502 collected cases is 85.8 per cent. Dorman calls attention to the slow and gradual improvement in this figure, from 94.4 per cent in Goodell's series in 1869 to 73 per cent in the Sloane series of 1913.

TABLE

Date.	Reporter.	No.of Cases.	Mortality.	
			Maternal	Infant.
....	Goldstine	69	10	....
...	Ballerini	41	..	100
...	Rotunda Hospital	...	10	95
1869	Goodell	106	50.9	94.4
1901	Holmes	200	32.2	85.8
1907	Herzfeld	...	29	82.7
1907	Lobenstine and Harrar	47	17	77
1913	Dorman	108	9.5	73

Factors influencing the prognosis are the plan of treatment adopted. Of 93 cases (Goodell) 43 were unaided and 32 died—74 per cent mortality: of 50 who received aid 15 died—30 per cent mortality. A little later I shall call attention to the mortality in a few cases treated by Cæsarean section.

A second factor is the proximity to completion of labor. In other words, those cases occurring during labor have a much better prognosis than the cases without uterine contraction and dilation.

A third factor is the form of hemorrhage, external only being the least serious, while the combined form follows with the purely concealed highest. The prognosis for the infant in the mild cases is none too good, according to Dorman's statistics. One hundred and eight severe cases gave an infant mortality of 73 per cent. While 131 cases of pathological interest only had a mortality of 47 per cent.

There have been written recently two or three interesting articles on the prognosis as determined by blood examination and clinical observations.

P. Ballard, "With a gradual and slow hemorrhage a blood count will show the indication; and risks of intervention. A comparison of the number of reds with the degree of reaction shows whether or not the organism is capable of resistance." In sudden hemorrhage we have only the blood pressure, pulse and hemaglobin to guide us. A sudden and persistent drop in blood pressure shows great loss of blood and inability of the organism to compensate by re-enforcing or accelerating the contractions of the myocardian.

The minimal pressure is more instructive than the maximal. "A minimal pressure of 5 cm. mercury is the lowest level at which the blood is able to keep circulating."

HISTORY OF CASES.

CASE No. 1.—Mrs. L. LeB. Admitted May 1, 1912, aged twenty-one, para I, nativity New York State. Previous history, typhoid at fourteen, otherwise negative. Last menstruation August 7th, expected date May 14th. Morning vomiting throughout. Pain began May 1st 2 A. M., admitted May 1st 4 A. M. Considerable hemorrhage, dark blood and small clots, no abdominal signs except those of a normal R. O. A. position. Large amount of albumin in urine. Put to bed, kept quiet, carefully watched, bleeding lessened and later ceased. Membranes ruptured spontaneously 11.40 A. M., birth 12.05 P. M., 5 lbs. 10 oz. Some dark blood and clots followed birth of child. Placenta spontaneous and complete 12.10 P. M.

CASE No. 2.—Mrs. J. P. Admitted December 9, 1915, age thirty-nine, para VIII, nativity New York State, two children alive, two dead, three miscarriages. Past history, always well except rheumatism. Previous pregnancies has had vomiting, headache and œdema; bowels regular, urine normal, blood pressure 126. Abdomen ovoid, fœtal heart R. and B. 144. Pelvimetry normal. History of present pregnancy: On December 8th at 1 P. M. patient ran hurriedly downstairs and felt rather badly afterward. Twelve hours later she lost a considerable amount of blood (estimated by her as one quart). A physician was called and he sent her to the hospital. Admitted at 5 A. M. Very little external hemorrhage on entrance and only slight afterward. Patient, however, had continuous pain in abdomen, with a hard, very firm, tense uterus, cervix thick, dilated one finger's breadth. A diagnosis of accidental hemorrhage, mixed variety, was made, and though the patient's pulse was only 76 and her general condition fair it was decided to do a cesarean section—while waiting for her husband in order to have consent to operate there was an interval of one or two hours, during which the uterus increased in size and consistency. Operation under ether 10.22 to 10.50—supra umbilical short incision—disclosed a uterus very firm and distended. The placenta was found just beneath the incision. This was pushed aside and the delivery completed. Uterus was full of clots and free blood. On suturing the uterus it was noted that the wall was thicker and softer than normal and that the sutures cut through very easily. For this reason the last row of continuous serous suture failed to cover over entirely the second layer. The placenta showed an area of detachment about one-third of its extent. The baby weighed 7 lbs. 5 oz. The mother ran a flat chart post-operative, and was discharged with the baby in good condition.

Case No. 3.—Mrs. A. C. Admitted December 18, 1915, age twenty-eight, para IV, nativity England, one child living, twins dead, no previous hemorrhages. Patient, about seven or seven and a half months pregnant, had been perfectly well till yesterday, when she began to have severe abdominal pain, felt weak and faint two or three times in the afternoon. No history of trauma or overexertion. About 6 P. M. nearly a pint of blood came from vagina and bleeding continued. A physician was then called, who packed the vagina and sent the patient to the hospital. On admission patient was bleeding through packing, was very weak and anemic, pulse was only 72, but scarcely palpable at wrist. Patient was given 16 ounce saline solution intravenously. taken to case room, the packing was removed, cervix was found soft, three fingers dilatation was completed, and as the small head was engaged forceps were applied and child rapidly and easily delivered, stillborn, about seven and a half months, 4 lbs. 2 oz. Placenta was at once expelled and was very ragged. Several large clots followed and the bleeding continued. The entire uterus and vagina was at once packed with gauze (three 3-yard rolls), pressure applied to fundus, ergotole, morphine, adrenalin, pituitrin, strychnine given at different times. Patient was very weak, exhibited air hunger, impalpable radial pulse, disturbance of vision. Transfused from her husband 300 c.c. citrated blood, and one and a half quarts of saline subcutaneously. Notwithstanding the tight pack the oozing through of watery blood wicking through gauze continued. She was examined for uterine rupture, none found, and uterus repacked, limbs alternately bandaged. Continued to sink and died at 2 A. M. Placenta medium sized and ragged, an area of detachment equal to one half of the placenta was found. Cord 18 inches in length.

Case No. 4.—Mrs. B. K. Admitted January 13, 1916, aged thirty-four, para VI, nativity Russia. Family and personal history unimportant. Menstrual history regular, but lasted six days—profuse. Duration of previous pregnancies all nine months. Some headache and œdema. Previous labors spontaneous and short, five living, one still birth. Last menstruation some time in June, expected date in March. Slight vomiting, headache, no œdema. Present history, patient had been working hard for past three or four days, chopping wood and doing other hard work, and noticed for two or three days past pain in the left side of the abdomen. This was more or less constant but not extreme. At 2 A. M. on the day of admission intermittent pains began fifteen to twenty minutes apart, hemorrhage occurring with each pain. Sent to the hospital, where she was admitted at 2.30 A. M. in the following condition: Thin, anemic woman, pulse 72, with a maximal blood pressure 130, height of fundus three fingers' breadth above umbilicus, uterus was heart shaped, presenting an irregular shape and consistency. The left side was very tender and boggy. The cervix was soft and partially dilated. Under ether this was completed manually and internal podalic version followed by extraction of a baby of 4 lbs. 14 oz. in poor condition, but which responded to the usual methods of resuscitation in five minutes. A large amount of clotted blood followed the birth. The mother was given a hot sterile intrauterine douche, ergotole and pituitrin. She had no further complication, and left the hospital on the tenth or eleventh day against advice. Baby was in fair condition.

Treatment.—Hemorrhage due to placental detachment will continue either constantly or intermittently until the uterus is empty, and therefore can contract down upon the open sinuses. This is the first principle underlying the treatment of this condition; therefore, pregnancy should be terminated by the most rapid method consistent with the integrity of the soft parts and ultimate safety of the mother. Except in the very mild forms with external hemorrhage only, a watchful waiting" policy is inadmissible. Sixty to ninety per cent of the babies perish by the usual method of treatment, so nothing is to be gained in trying to carry an early case to the point of viability.

A positive diagnosis having been arrived at, the patient should not be left until delivered, for then and then only can she be said to have reached comparative safety—as to the exact method of procedure rules cannot be laid down with mathematical accuracy. Judgment and experience alone will dictate the plan to be followed in each case.

If the hemorrhage occurs during labor and the os is one-half or more dilated forceps or version with rapid extraction obviously should be our choice.

For the very mild case of external bleeding only with no constitutional symptoms absolute rest with morphia, small doses of pituitrin and close watching of the fœtal heart are sufficient. These cases should not be left, however.

What of the severe, concealed or mixed variety with the picture of hemorrhage and shock? These are the cases demanding the best of judgment and skill. Intelligent treatment in obstetrics, as in medicine and surgery, must be based upon the known pathology. It is difficult to understand how plugging the vagina alone with hemorrhage behind a placenta situated near the fundus fulfills this requirement. However, this vaginal tamponade with the free use of opium and a light abdominal binder is the one followed by the Dublin school, it is said, with good results, Goldstine reporting a mortality of 10 per cent. The rationale of the procedure is said to be that it stimulates labor. The use of the Vorhees bag with small doses of pituitrin would seem, to my mind, to more rapidly stimulate cervical dilatation provided time permits of so slow a course.

It has been recently demonstrated in an appreciable number of cases by different and careful observers that premature separation is often accompanied by marked changes in the uterine walls, depriving the musculature of its ability to contract post-partum. It has been shown time and again that post-partum hemorrhage is the deciding factor against the patient's life and that this hemorrhage is often uncontrollable, even by packing. Dorman detailed three of his cases all packed, but continued to bleed and died.

What procedure so well meets these requirements as abdominal hysterotomy? To be sure, Cæsarean section was recommended by a few a decade or two ago, but usually with the qualifying condition that it was to be done in the obstructive cases, or cases of disproportion, otherwise vaginal section. De Normandie says, "One objection to cesarean in this condition is the fact that after the delivery the bleeding may be uncontrollable and hysterectomy may be necessary to save the patient's life."

This same uncontrollable bleeding is just as liable to follow delivery from below as in my case, whereas an open abdomen and a diseased uterus in view permits of hysterectomy in some of the cases, which probably is the only measure liable to save the woman's life.

There is another factor which should help us to arrive at a decision, viz., infant mortality. Here we have a parallel with placenta prævia with active hemorrhage and a rigidly closed cervix. In both conditions an expectant plan or one less certain or slower in its consummation will almost surely result in fœtal death. It is often taken for granted that the infant will perish. I believe the baby should be given a chance, providing that chance does not militate against the mother's recovery and unless Cæsarean section is contraindicated, because of suspected infection, or unless the patient is in extremis, and if there is the picture of severe constant pain with shock with or without external hemorrhage with a closed cervix, that abdominal de-

TABLE II.

No.	Week	Age	No. of Preg.	Cause	Method of Delivery	Variety	Mortaity Mother	Mortaity Infant	Length Cord
I	38	21	I	Albuminuria, vomiting	Expec. Spontaneous	External only	Recov.	Recov.	
II	38	39	VIII	Overexertion	Cæsarean	Mixed	"	"	27"
III	33	28	IV	None found	Forceps	"	Died	Died	18"
IV	32	34	VI	Overexertion	Version	"	Recov.	Recov.	24"

TABLE III.

	Age	Para	Date	Indication	Period Gestation	Changes in Uterus Noted	Result M.	Result Inf.	Comment
L. and H. N. Y. Lying In:	46	1	Not given	Not given	10	....	Recov.	Recov.	Uterus full clots
Dorman..........	Result not noted								
Williams	24	1	1914	Hem.	8	(Hemorrhagic infarction, arterial degen.)	"	Died	Hysterectomy Uterus full clots and fresh blood
Williams	18	1	1915	"	10	(Hemorrhagic infarction and infiltration)	"	"	Clots
Lequex	..	..	1910	"	..	....	"	"	Hysterectomy
Brandt	30	1	1914	"	..	Apoplexy uterus	"	Not noted	
Wing	27	1	1915	" & contraction of pelvis	9	....	"	Recov.	Cord about neck
Wing	22	1	1915	Hem.	8	Infiltration	"	Died	full clots
Quigley	39	8	1916	"	9½	Soft, thick	"	Recov.	

(Eight cases no maternal mortality. Seven cases with details, 4 infants died, 3 recovered—57 per cent infant mortality.)

livery offers a better maternal prognosis and practically the only hope for a living child.

The treatment of the hemorrhage *per se.* If the delivery has been from below, the placenta should be immediately expressed, as it is probably by this time completely detached, the uterus immediately and thoroughly packed, ergot given, and the fundus carefully watched for several hours, for the uterine contractility is very much of an unknown quantity.

Transfusion should be done, and during its preparation infusion of normal saline.

I have been able to collect with my own case nine reports of cesarean section for ablation placentæ, though more unreported cases have no doubt occurred.

Conclusions.—Premature separation of the placenta is not as rare as commonly thought. Its etiology and pathology are not established, but changes in the uterine wall and outside it of a hemorrhagic and degenerative character closely resemble similar changes—the brain and liver in toxæmia, and as albuminuria is a rather common accompaniment of accidental hemorrhage it would seem as though the latter might be due to toxæmia.

The prognosis, always high, is slowly and progressively improving.

Taking into consideration the pathology and prognosis, cesarean section is the most rational method of delivery in those cases of severe hemorrhage which do not permit of rapid safe delivery per vaginam.

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Discussion.

DR. GEORGE GRAY WARD, JR., New York City: I had a case a few months ago of accidental hemorrhage. The patient was a young woman of about twenty-seven who had evidence of Graves' disease which was at the time practically quiescent. At term she started in labor. Examination showed that the head was not engaged in the pelvis. Shortly after labor started, she had a sudden profuse hemorrhage which was of such quantity that there was no question of the seriousness of the condition. There was no evidence of placenta prævia, and it was undoubtedly a case of accidental hemorrhage. Owing to the fact that the head was not engaged and there was no dilation of the cervical canal, and she was a primipara, we decided to do a Cæsarean section. I did the section and had the happy result of a living child and a mother who recovered also.

In this case the cause of the accidental hemorrhage was interesting. It was undoubtedly due to a shortened cord. The cord was wrapped around the body several times and was attached to the margin of the placenta. When she started in labor, the cord being so short caused traction on the edge of the placenta, detaching it.

The hemorrhage was so profuse that I am certain if we had not operated quickly we would very likely have lost the child and possibly the mother.

DR. WILLIAM MORTIMER BROWN, Rochester: Just to call attention to one point of the diagnosis in a doubtful case: I realize that most of these cases, that is the grave cases, are rather definite and easily understood, but I think it is Dr. Williams who calls attention to the milder cases where bleeding is going on. Dr. Quigley brought out that even after an extreme hemorrhage these cases often have a slow pulse, a pulse out of proportion to the degree of hemorrhage which they have had. The question of hemoglobin estimations which can be done usually quickly is very important. They have shown that a case of concealed bleeding will bring down the hemoglobin to 60 or 70 per cent before it will affect the pulse in any way whatever. I think it is an important thing in these cases, where we suspect placental separation and bleeding is going on, to get careful hemoglobin estimations.

DR. QUIGLEY, in closing: Dr. Ward is particularly fortunate in having saved that baby with the short cord. I have found several similar cases in the literature where the babies were lost.

TREATMENT OF PROCIDENTIA UTERI.*

By GEORGE CHANDLER, M.D., F.A.C.S.,
KINGSTON, N. Y.

THIS paper will be limited in its scope to the title. Procidentia Uteri is a condition in which the uterus protrudes through the vulva. The etiology of this condition I will not dwell upon as there have been many theories concerning it, and the causes are not germane to this paper.

The results are too well known for me to spend my time and yours rehearsing them here.

It is a condition that is most distressing and leads to chronic invalidism.

Its treatment was for years most unsatisfactory in my hands, and from observation of the masters of gynecology during my student years and later, no treatment has seemed of any avail.

The use of supports as you know has been impossible with the exception of some form of stem pessary supported from a belt about the pelvis. In other words a suspension apparatus. This has been the best means, outside of operative treatment, that has ever been devised.

Under operative treatment, repair of the perineum alone is useless. Any one of the numerous operations which depend upon the uterine ligaments for suspension is followed by return of the condition. Total hysterectomy, with a complete denuding of the entire vaginal surface of its mucous membrane and stitching the raw surfaces together so as to totally obliterate the vagina has been practiced occasionally in very extreme cases and where the patient is well along in years. This is such a radical procedure that few men have used it at all, or would recommend it.

During the past two and a half years the writer has been doing an operation which he has never seen performed but has heard it described. I believe it is the one attributed to Kocher. It has been done in a somewhat modified way by Dr. John B. Murphy of Chicago.

The operation is as follows: With the patient in the Trendelenburg position, a Pofannensteel incision or low transverse incision in the crease above the pubis is made through the skin and superficial tissues to the fascia. The recti abdominis are separated a short distance and as low down as possible to the pubic bone. The uterus, if it has not already dropped back into the pelvis and not easily reached, is pushed up from the outside, by an assistant, through the vagina. If the uterus is very small and atrophic, with correspondingly atrophic tubes and ovaries, it is grasped by the vulsella, pulled well up, or as high as it will come out into the wound, bent slightly to the right or left, and with a running catgut suture the peritoneum is sewed tightly around the cervix, or even the vagina if it is lax enough to come up into the wound. This shuts off the peritoneal cavity and makes the uterus and adenexa extra-peritoneal. The skin and superficial tissues are pushed upwards from the fascia and a sort of bed for the uterus is made. The fascia is stitched together with catgut, and one or two deep silkworm-gut sutures are inserted through the skin underneath the fascia, coming out on the surface, to be tied later.

The uterus is then laid in this bed, not over the incision in the fascia, but to one side and there stitched flat with catgut. One silkworm-gut suture is placed through the skin from the outside into the fascia, through the body of the uterus, into the fascia again and then through the skin. The skin flap is dropped back over the wound and uterus so as to cover them both. The silkworm-gut sutures are then tied. The skin incision should not be closed tightly.

When the womb is fairly large and the ovaries and tubes proportionately so, the tubes and ovaries may be freed from the uterus, tied off with catgut and dropped back into the pelvic cavity. Then the same procedure as described above is followed with the body of the uterus.

Following this operation the patient will have in a few days, possibly four or five, a rather dark bloody discharge along the line of suture. This I have found continues for a week or two, and then subsides. The ordinary treatment following a laparotomy is given the patient, as to catharsis, food, etc. At the end of three weeks she should be in a chair, and in a month's time walking about.

At first there is considerable pain in the bladder but this disappears in about six weeks.

John B. Murphy's operation is the same as this except that he splits the uterus into two halves, dissects out the mucous membrane and sews one half on one side of the abdominal cut and the other on the opposite side, like a "butterfly," as he describes it.

The operation I have described has proved in my hands, better and simpler than Murphy's, possibly due to the fact that my technique is not so good and simple things always appeal to me.

As a finish to the operation, the perineum should be thoroughly repaired, and it is well to dissect out some of the mucous membrane from the anterior wall of the vagina, also from the posterior. In other words, doing an anterior and posterior colporrhaphy. This is very essential and the operation on the perineum should be well done, the levator and muscles, or what is left of them, firmly brought together. The deep sutures should be of non-absorbable material and should not be removed until the 14th day.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 18, 1916.

When I first did this operation I was fearful that there would not be room enough for the bladder and I therefore sewed the uterus at some distance from the pubic bone. A hernia developed in this case, though not serious, so the next one I did closer and the results were excellent. Since then I have done them as close as I can above the pubic bone. The incision should not be more than just large enough to squeeze the uterus through, the assistant shoving it up into the incision. This is the crux of the whole operation.

In this way hernia is avoided. I have done about thirty of these cases ranging in age from forty-six to seventy-six years of age, and the results are most gratifying to me and to the patient. Where I used to dread seeing one of these cases, I now welcome the opportunity of performing this operation, because of the relief I can give the sufferer.

For example: A patient sixty-two years old was brought to me with an obstruction of the bowels. The small intestine was caught in the sack made by the inverted vagina of the procidentia. After relieving the obstruction this operation was performed. The patient is very well today. This was two years ago.

No matter how bad a condition she is in, you can argue that you could not possibly make her any worse, so the attempt is justifiable. You will find that this operation seems to do everything that is required and the results are surprisingly good. There has been some settling but I have never seen a return in the two and a half years I have used it, though I admit this is rather a short period of time to judge from. All signs, however, point to permanency.

This operation is obviously one that should not be done until after the menopause, and personally I should hesitate to attempt it in a very fleshy woman with pendulous abdomen.

There is perhaps nothing new in this operation, but I have not heard of its being done in exactly this way. I have personally been so pleased with the outcome so far that I feel the time taken in briefly describing this procedure will not be wasted.

Discussion.

Dr. George Gray Ward, Jr., New York City: I would like to ask Dr. Chandler what he would do in a case where the uterus was obviously diseased, or with interstitial fibroids present. I would like to ask him if he has had any experience with the Mayo operation for prolapse. The operation that Dr. Chandler described does not always succeed, in my judgment. In some cases where I have fastened the cervix very firmly to the abdominal wall, elongation of the cervix due to traction of the vaginal walls has occurred, as in cases of prolapse.

Dr. A. B. Miller, Syracuse: This operation of which the doctor has given us a report, is a modification of one with which we are familiar, and is applicable to certain conditions of prolapsus. We must not forget the etiology of these conditions. In the discussion, yesterday, that was not entirely brought out. We must not have fixed in our minds any special operation which we are going to do for the trouble.

I regretted that the thought was not expressed that the malformations of the pelvis were frequently the cause of prolapsus; also the mal-relation of the abdominal cavity to the pelvic, permitting the contents of the upper to rest on the lower. Of course, the operative procedure must be determined by the age of the individual, whether before or after the menopause.

We must determine whether it is to be a transpelvic (Watkin's) operation, a vaginal, an abdominal, a suspension, or fixation. It is my judgment that Dr. Watkins, himself, is not doing his operation nearly as extensively today as he did formerly. It was just so with the Murphy button. It was the incentive for doing the thing that we find we can do better now by using the suture method. We will have to vary our technique in the operative procedure according to the etiology of the cases which we have in hand.

First, find out how much cloth we have, and cut our pattern accordingly. The fact that we have so many different operative procedures is proof conclusive that there has not been an ideal operation found for this condition. There will be no *one* operation in the future. Men should be actuated by reason, after studying their cases; and, after taking into consideration, all conditions of etiology and pathology, should decide upon the operative procedure which might seem best at the time.

Dr. Chandler: The operation you spoke of, the super-vaginal hysterectomy, I have also done and sewed the cervix into the abdominal wall but I have never had the good results that I have in this operation of mine.

It is only in real true cases of prolapse, or rather procidentia uteri, that the operation is useful. In complicated cases, of course, it depends upon the conditions that you are up against, such as a fibroid, etc., but in a straight case of procidentia uteri, if the patient is in good health, I believe that this operation with suture of the uterus very close down to the pubic bone, will do very well provided the perineum is repaired.

RENAL TUBERCULOSIS.*

By HENRY DAWSON FURNISS, M.D., F.A.C.S.,
NEW YORK CITY.

RENAL tuberculosis is a disease of extreme interest to all, and particularly to us gynecologists. In the past we have been too prone to think that many bladder conditions were due to other diseases of the pelvis and abdomen, and that the presence of a few pus or blood cells in the urine of a woman with leucorrhea or bloody discharge was apt to be accorded to other than the real condition.

In the study of our patient I believe that we should account in a satisfactory manner for each and every symptom. All of us have seen patients operated upon for some gross and apparent lesion, only to learn that a more serious one has been overlooked. What has been said has its bearing on the topic that I have chosen, for several of my cases have had other operations—some due to mistakes in diagnosis, others due to a failure to investigate conditions that little interested the operator. The sins of omission have been greater than those of commission, as the greater percentage of cases that I have seen had had symptoms and signs for a number of years, and few less than a year, that should have enabled one to make a proper diagnosis.

The failure to have complete and accurate records of all the cases renders an accurate statistical study impossible. When the statistics on some particular point are noted in only a few cases the percentages formulated are apt to be erroneous and misleading.

In this study of 33 personally observed cases I have endeavored to show the relationship to previous tuberculous infections of other organs; the first symptoms; predominating complaint; the age incidence; the natural history; the diagnostic points, and the operative results.

Other and Previous Tuberculosis.—In 20 per cent there was a history of other tuberculous lesions. Cervical adenitis was noted once; within a year I saw three cases with evidence of old healed bone tuberculosis, and in each of these the bone involvement preceded urinary symptoms five years. In a recent case that has come under my care the patient had had a discharging ear for 14 years, with symptoms of renal tuberculosis for only two years. I am of the opinion that this ear involvement is tuberculous. It is probable that the kidneys were infected during the active stage of the bone trouble and that the renal involvement was symptomless for a number of years. However, in the last case mentioned, I do not believe that the renal tuberculosis started at the beginning of the ear trouble. In 15 per cent of the cases there was evidence of lung involvement, and in two of these the pulmonary lesions overshadowed the renal and vesical conditions. I have had no cases that seemed to be associated with genital or peritoneal tuberculosis.

First Symptoms.—In about 50 per cent cystitis was the first symptom. In many of these the first attack was followed by a period of relief of a month, a year, or even more. In 15 per cent of the cases macroscopical hematuria was the first symptom, but usually this was associated with or closely followed by symptoms of a marked cystitis. I have had the opportunity to observe one or more of these cases during the bleeding period, and I feel convinced that the hematuria is vesical instead of renal in origin and marks a beginning acute cystitis, or an exacerbation of an already existing cystitis. Usually the hematuria occurs early, is of brief duration, one to four days, and if it recurs does so usually within a month. If the hematuria is considered as a symptom of cystitis, as I believe it is, it brings the percentage of cystitis as the first symptom up to 85 per cent. Renal pain or ureteral pain was noted as the first symptom in 15 per cent of the cases. This pain is usually of a colicky character, is intermittent, and resembles in its character that of renal or ureteral calculus. It is seldom of the dull aching character.

Fifty per cent of the cases had macroscopical hematuria at some time in the disease, usually early. In the other 50 per cent almost all had red blood cells in the urine that could be discovered microscopically.

The chief complaint when seen was cystitis in 65 per cent, renal or ureteral pain in 35 per cent. In the cases in which other symptoms than those of cystitis predominated the cystitis was also usually troublesome. This cystitis is, by all odds, the most disagreeable symptom, and the one that most frequently, through the discomfort and loss of sleep engendered by frequent urination, necessitates nephrectomy. To get the best results this should be done before extensive and hopeless bladder involvement has occurred. As before stated, the renal pain is usually of a colicky character, and similar to that of renal or ureteral calculi. In a number of cases this has been the chief complaint and the one for which the patient was operated.

Pyuria.—This was present to a greater or less extent in every case. Tubercle bacilli were found in slide preparations in 85 per cent of the cases. I realize that this appears high, but I believe that the actual percentage would have been greater had experts instead of hospital internes examined all. It is in the early and very late lesions that we most often fail to find the bacilli. In a number repeated examinations were necessary before the discovery of the bacilli. Crabtree's method of search will probably give better results than have been obtained in the past. He centrifuges the urine at low speed to throw down the pus cells, which are heavier than the bacilli. The supernatant fluid is then centrifuged at high speed and in the sediment the bacilli are more easily found.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

In no instances have I found a positive guinea pig reaction where there was failure to find the bacilli in the smear, and in two instances the smear was positive (one in large numbers) and the pigs negative. Usually no other organisms are found, but we have had mixed infections with staphylococci and colon bacilli. Usually the failure to find other organisms in the stained smear is indicative of tuberculous infection. Dr. Sondern has pointed out that the same condition sometimes exists in cases of calculus pyuria.

Temperature.—This has not been of any moment except in a few cases, and in two of these I felt it was due to non-tuberculous involvement of the other kidney. In 15 per cent the temperature was slight and in the larger percentages entirely absent.

Enlargement of the Affected Kidney.—In only 15 per cent was enlargement noticed, the majority being of normal size and a few smaller. Slight compensatory increase of the healthy kidney was noted a number of times. There were no cases with perinephritic abscess.

Cystoscopic Appearance.—In all except very early cases there were lesions of the bladder characteristic of tuberculosis, and in most the diagnosis was made with the cystoscope and adhered to, even when there was failure to find the bacilli. Usually the tuberculous bladder is more intolerant to distension than bladders otherwise infected. In the early stages there may be great frequency of urination without much demonstrable involvement of either the ureter or bladder. In these the finding of bacilli and the determination by ureter catheterization from which kidney they come is necessary. When the patients first apply for treatment the condition is generally sufficiently advanced to show characteristic changes in the bladder. At first this consists in reddening and induration of the ureteral orifice. The orifice of the ureter becomes changed to a round or irregular opening. Often there are nodular irregularities around the orifice. Later the induration extends peripherally, and the trigonum on the affected side becomes involved. About this time there is to be seen on the anterior wall an indurated area, corresponding in location to the opposite ureter.

As the disease progresses the induration becomes greater, the ureteral meatus more indurated and rigid, and with the shortening of the ureter that portion of the trigonum is retracted, often so greatly that the ureter appears on the posterior wall. Still later the ureter appears as the so-called golf-hole ureter.

There are other cases where ulceration takes place; in these hemorrhage is greater and the bladder discomfort is more marked. These ulcers are most often located around the ureter and on the anterior wall opposite the ureter. Occasionally they are multiple and situated all over the bladder. Except in advanced cases and where secondary infection has taken place, the remainder of the bladder is uninvolved. In my experience these ulcers are never excavated but appear as granulation tissue and are elevated above the surrounding mucosa. As yet I have not seen what I considered a miliary tubercle in the bladder. Multiple ulcers were seen in 15 per cent of the cases.

These processes continue progressively and finally the whole bladder may appear as a small cavity lined with granulation tissue, in which no one part is distinguishable from another. The tuberculous bladder is peculiarly intolerant to distention, and a severe reaction is apt to follow forced filling.

Palpation of the Ureter Through the Vagina.—In cases that have been of any duration, the involved ureter can usually be felt through the vagina, 45 per cent of our cases. In advanced bladder involvement, where cystoscopy is almost impossible, this is of great help in determining which is the affected kidney. In renal tuberculosis the ureter may be only slightly thickened, or be a tube the size of the middle finger.

Diagnosis.—As before stated we have found tubercle bacilli in 85 per cent of the cases. In women the finding of pus and tubercle bacilli in the catheterized bladder urine is evidence that at least one kidney is tuberculous. Usually cystoscopy will show which side is involved, and further evidence of the affected side is to be found in the delayed elimination of indigo-carmine after intravenous injection.

Only in the earliest cases do I think that it is proper or necessary to catheterize the ureter of the involved side. It causes traumatism and many times is impossible on account of the indurated condition of the ureter. However, I do think it necessary to catheterize the supposedly healthy side to determine if it is likewise involved.

The General Health.—The general health of 50 per cent of the cases has been good, of 35 per cent fair, and only 15 per cent poor. In those where the health has been poor there has been severe lung involvement, or both kidneys have been diseased; in two of these where both kidneys have been affected the infection of the second kidney was not tuberculous. In some of those where the condition of the health was noted as fair I believe the impairment was due to the discomfort of the severe cystitis and the consequent sleep loss. I do not recall any patient with single renal tuberculosis, uncomplicated, who ran more than a slight temperature.

Operation.—All except four had nephrectomies. The principal interest has centered in the treatment of the ureter. There has been simple ligation and division; ligation and division with cautery; division, injection of carbolic and ligation; implantation on the skin; closure with drainage and without drainage. My impression is that the percentage of postoperative sinuses is about the same no matter what the method of ureter treatment has been, and that the condition of the kidney and the ureter have more to do with this complication than the method of handling. If there is an active tuberculous process, then the chances of sinus are greater. In those that are drained the sinus appears during the patient's stay in the hospital; in those that are not drained, from four to eight weeks after operation. For this reason, unless the cases are closely followed after they leave the hospital, the undrained cases give apparently better results. From the theoretical standpoint the excision of the kidney and the ureter to the bladder is the best procedure. When a long piece of ureter is left it is possible that a stricture may exist lower down in the ureter that would cause the drainage of pus backward into the cellular tissues and thus favor the formation of a sinus. Also, leaving a long portion of the ureter causes more drainage of tuberculous material into the bladder to keep up infection there. In only one case have I excised the whole ureter with the kidney, but the result of this has been so satisfactory and the technical difficulties so slight I shall in the future, unless there is some contraindication, where there is involvement of the ureter, excise it to the bladder. I believe that the excision of the ureter is best done through an additional incision and that it is best done extra-peritoneally. Also, that the ureter should be loosened at the bladder and before the excision of the kidney.

Results.—Even though one of the patients had bilateral tuberculous involvement of the kidneys, two had non-tuberculous inflammation of the remaining kidneys, with impaired kidney function, there has not been an operative death, and only two have died since operation; one of pulmonary tuberculosis, and the other of general miliary tuberculosis. This patient had tuberculosis of both kidneys. In one the family physician has reported that he suspects secondary involvement of the remaining kidney, but no opportunity has been had to examine this patient, so his suspicions in this case cannot be verified. About 30 per cent have had postoperative sinuses that have remained open and draining for from a few weeks to several months. One as long as two years. This long drainage has not interfered, seemingly, with the general health of the patient. Thirty-five per cent have been cured as far as all subjective and objective symptoms are concerned and are in good health. All of the others, with the exception of the one that has been reported to have secondary involvement of the other kidney and the two that died, have improved. The continued bladder involvement is all that keeps most of these out of the cured class.

I am of the impression that the patients with advanced tuberculosis and those that have had the trouble for a long time have done better than those who have had the trouble for a short time, and when the process is not much advanced. As an explanation, it may be said that these patients have not yet developed sufficient immunity, and also, where the tuberculous involvement of the kidney is slight, we are depriving the patient of much useful secreting tissue.

In a number of cases after operation, we have noticed a brisk rise in temperature, with an exacerbation of all other tuberculous processes in the body following nephrectomy. This, I believe, is due to a typical tuberculin reaction, caused by the removal of the tuberculous tissue. Two of my cases had post-operative hematuria, that I think was due to the tuberculin reaction on the vesical lesions.

In the post-operative bladder treatments these patients have done as well on hot boric acid irrigations as anything else. Even at the best the improvement is slow and is in proportion to the intensity of the cystitis that existed at the time of operation. In some of the cases where only a small ulcer persists I believe that these had best be cauterized with nitrate of silver fused on a probe, through a Kelly speculum, or fulgurated.

Duration of Symptoms.—In 22 cases in which duration of symptoms was noted 1 was for three months, 1 was for six months, 5 for nine months, 4 for two years, 3 for three years, 3 for five years, 1 for eleven years, and 1 for thirteen years. Twenty cases in which the ages were noted, between 15 and 20 there was 1; between 20 and 25, 4; from 25 to 30, 4; from 30 to 35, 3; from 35 to 40, 3; from 40 to 50, 3; from 50 to 60, 1; from 65 to 70, 1. Thus it will be seen that 45 per cent of the cases occurred between 20 and 30 years, and that 65 per cent occur between 20 and 60 years.

The following conclusions have been drawn:

Renal tuberculosis is rather frequent.

About half of the patients when seen are between 20 and 30 years old, and two-thirds between 20 and 60.

The disease is probably latent for a long time, as shown by the histories of several cases in which the primary focus was active many years before.

The disease is essentially a chronic one.

About one-third of the patients complain of pain in the kidney or ureter, while two-thirds consult the doctor on account of cystitis. In all cystitis is troublesome, though not the predominating complaint.

The prognosis as regards life in the cases operated upon is good; as regards relief of symptoms fair; as regards the subsequent appearance of the disease in the other kidney or the development of tuberculous lesions elsewhere in the ureter good.

Discussion.

Dr. Alfred M. Wose, Syracuse: I was interested in two points in Dr. Furniss' paper: (1) The fact that he mentioned the early symptom of cystitis as diagnostic of tuberculosis of the kidney; (2) in regard to the cystoscopy it is important to get these cases early. If you delay in sending your cases for cystoscopy you are allowing these bladders to contract, and in many cases it is impossible to make a differential diagnosis of the urinary secretion. In fact you cannot find the ureter, but you then base your observations upon the bladder contents and your clinical symptoms. Dr. Furniss has shown very admirable specimens. He has certainly had these cases very early, and his results necessarily have been good. I believe if we allow our cases to advance to too great an extent that fistula will result from nephrectomy.

Dr. Hiram N. Vineberg, New York City: Just a few points, and one is that I think when Dr. Furniss said fistula—he meant probably sinus; a fistula would mean that there was a leakage of urine.

Another point that I would make is this: I can't quite agree with Dr. Furniss as to the fact that the older these cases are the better the chances are of recovery or the better results. It seems to me—I have operated now on eighteen cases, some of them extending over nearly twenty years—and my experience has been the earlier the case the better the results, because the operation in itself and its immediate results are usually good. It is simply the affection of the bladder, and the longer the case has been going on the more severe that will be. The tubercular cystitis is the thing that keeps up for a year or two afterward. The point which I would like to make is that in any case of cystitis that lasts for some time and resists the ordinary treatment, tuberculosis of the bladder may be suspected, and in the majority of instances you will find that to be the case.

It seems to me also that most operators have come to the conclusion that no attention need be paid to the ureter. It can simply be dropped. The Mayos inject carbolic acid into the ureter and there is really no need of exposing the patient to a greater operation in removing the ureter.

THE CHOICE OF TUBERCULINS.*

By **BENJAMIN WHITE,**
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From the Bureau of Laboratories, Department of Health, City of New York.

THE practitioner of medicine in contemplating the use of tuberculin for treating his tuberculous patients, unless he be well practised in this mode of specific therapy, may be easily confused by the array of preparations at his disposal. If he turns to the extensive literature on the subject his confusion increases. In addition to tangible theoretical claims for each variety he finds reports of clinical studies which would seem to attest the superiority of this or that tuberculin over earlier preparations. Our present knowledge of tuberculosis immunity is, unfortunately, so scant that little conclusive experimental evidence can be brought forward to guide us in our choice. We must rely, therefore, upon certain theoretical considerations based upon our knowledge of the biochemistry of the tubercle bacillus and of its behavior in human tissues, supplemented by the clinical experiences of trustworthy observers. If we were to proceed from a rationale based upon our modern theories of bacterial immunity in general we should endeavor to prepare a tuberculin containing in an unaltered condition all the autigenic constituents of the tubercle bacillus and its metabolic products as well. Such a rationale, however, must be conceived with a strict regard for the physiological action of these constituents, either alone or combined, as manifested by the degree of their inherent toxicity, their absorbability and, above all, by their ability to evoke vascular or other changes at the site of infection. The ideal tuberculin would accordingly be one which elicits a characteristic reaction at the tuberculous focus, one which is not toxic for non-tuberculous animals and which produces no more than transient and slight inflammatory changes at the point of injection.

Ever since the original promulgation of tuberculin by Koch in 1891 experimenters have endeavored not only to isolate for administration those constituents of tuberculin which were felt to be potent in curative action but also to eliminate such ingredients as might exert a harmful effect upon the human subject. Hence, all the tuberculins which have appeared since the original tuberculin of Koch have been devised and put forward as possessing all the advantages and few of the disadvantages of previous preparations. But, as Hamman has said, "Modernity alone does not confer value on a tuberculin, and the present stage of our knowledge forces us to yield greatest respect to a few, and these not the youngest, of a large group."

The choice of a tuberculin naturally depends upon the service for which it is intended. For diagnostic purposes, whether it is to be administered by the cutaneous, percutaneous, intracutaneous or by the now less widely used subcutaneous method, the original tuberculin of Koch, or "O. T.," is now recognized as the standard. In employing any given preparation of this kind it is desirable to determine its activity by test injections on a known tuberculous subject—one whose sensitiveness to a potent tuberculin has been previously determined quantitatively. This can be done easily by the Mantoux method of intracutaneous injection, introducing 1-20 cc. of freshly prepared dilutions of the tuberculin. In this way one may obviate misleading results due to a preparation which was originally low in potency or which has deteriorated since its manufacture. It is confidently expected that in the near future a method will be devised so that the clinician will be enabled to procure tuberculin products of known potency.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 18, 1916.

In selecting a tuberculin for therapeutic administration the choice, unfortunately, is not so simple. However, the possibilities may be limited to a comparatively few well tried preparations, and in doing so the practitioner need not feel, in spite of impressive and promising claims, that he is missing any particular preparation, which, if used instead, would yield in his hands far better results. If the consensus of reliable opinion be taken, it is found that "O. T." still stands in high favor for curative as well as for diagnostic purposes. A certain amount of prejudice still exists concerning its use—a prejudice which arose from the disastrous results following its misuse in the early days of specific therapy. Old tuberculin represents all the constituents of the tubercle bacillus as well as such chemical substances as are elaborated in the culture medium during its cultivation. The amount of heating undergone in its preparation undoubtedly produces denaturalization of the bacillary proteins and the alteration of such labile substances as are present in the mixture.

Denys, believing that heat was deleterious and that a greater immunizing potency could be attained by omitting the sterilizing and concentrating processes practised in the preparation of Old Tuberculin, devised his *Bouillon Filtrate,* or "B. F." This consists merely of the filtrate obtained by passing actively growing broth cultures of the tubercle bacillus through a bacteria-proof porcelain filter. "B. F.," therefore, contains only such constituents of the bacillus as are soluble or are elaborated in the culture medium during cultivation. It is considered by some to be somewhat weaker than "O. T." and by others a strong antipyretic action is attributed to it. Many clinicians prefer "B. F." for instituting a course of tuberculin treatment, since they feel that it is better tolerated by some patients who are extremely sensitive to "O. T." and "B. E."

Certain objections have been raised to the possible harmful action of both the excretory products of the bacillus and of the ingredients of the culture medium which both "O. T." and "B. F." necessarily contain. In order, however, to do away with this objection, which he himself raised to his original preparation, Koch devised his "New Tuberculin," or "T. R." This is a suspension of the unaltered substances from the body of the tubercle bacillus but is free from its secretions and culture medium. A later modification is the *"Bazillen-Emulsion,"* or "B. E.," of Koch, which likewise contains all the bacillary substance as well as any extractives contained in the bacilli. The solids are suspended in 50 per cent glycerine and each cubic centimeter should contain the substance of 5 milligrams of tubercle bacilli. A consideration of the chemical makeup of "B. E." would make it seem that it possesses all the theoretical advantages of "T. R." Clinical reports lend weight to the opinion that "B. E." is quite as efficacious as its precursor, although ophthalmologists have always shown a preference for "T. R." This preference is undoubtedly based upon a continuing custom, and, in order to restrict the number of tuberculins by eliminating those which are practically identical with other recognized kinds, it could be recommended that "B. E." be employed to the exclusion of "T. R." By its use no advantage would be lost and there would be a consequent gain in lessening the present confusion. Bazilleu Emulsion, therefore, fulfills the requirements of those who desire a tuberculin representing as nearly as possible the entire substance of the tubercle bacillus in its natural condition and which possesses, more than any other tuberculin, the characteristics of a bacterial vaccine. Its possible disadvantages are that it is more slowly absorbed than the soluble tuberculins, thus delaying the reaction, and, further, when larger doses are reached in the course of continued treatment tender and persistent swellings frequently develop at the site of injection.

Brown has suggested combining "B. F." with "B. E." Such a mixture would include the whole of the bacillary substance and the secretions of the tubercle bacillus, all in an unchanged condition, since no heat is employed in the preparation of either product. On this account, at least, this combination might be preferable to "O. T."

The practitioner should remember that not all tuberculous patients react uniformly to any given tuberculin and that it may be desirable to replace one preparation by another if unfavorable results attend its administration. Autogenous tuberculins, that is, tuberculins made for each individual patient from the particular strain of tubercle bacillus isolated from that patient, have been recommended. The difficulties presented by such a procedure preclude its adoption in the great majority of cases.

A word of warning and protest may not be out of place here against the use of tuberculins or vaccines containing living bacilli, whether they be tubercle bacilli or organisms of the saprophytic acid-fast type. At the present time there is no evidence, experimental or empirical, that such agents possess any greater therapeutic value than the older tuberculins. On the contrary, the records show that many unsatisfactory results and even distressing sequelae have followed the injection of living organisms into the bodies of tuberculous patients.

It is unnecessary, and beside the purpose of the present paper to discuss the merits of all the tuberculins which have found favor with clinicians, particularly with those in foreign countries. The preparations of Béraneck, Rosenbach, Jochmann and a host of others all have enthusiastic adherents, and the published observations would seem to bear witness to their efficacy.

The preparation of all these tuberculins is founded on the idea of refining and concentrating the supposed active immunizing principles of the tubercle bacillus. From a theoretical standpoint it is undeniably desirable to isolate the antigenic substance from undesirable components, yet since experimental study so far has failed to give us a true explanation of the immunologic processes operating in tuberculosis it is obviously impossible to designate any particular substance or substances which will call forth the desired immunizing response. It should be remembered, too, that the physical and chemical procedures employed to refine or concentrate the tuberculin may seriously affect the immunizing potency of its constituents.

Therefore, until our knowledge of the immunity mechanism in tuberculosis is extended and defined it would seem reasonable that the choice of tuberculins for the treatment of tuberculous infections be restricted to those preparations concerning the use of which we have the fullest information. Based upon these considerations the choice would include Old Tuberculin ("O. T."), Bouillon Filtrate ("B. F.") and Bazillen Emulsion ("B. E."). These three meet our present theoretical requirements, their selection is justified by experience, and by advocating their use to the exclusion of other preparations the perplexity of the practitioner in planning a program for the treatment of his tuberculous patients would be greatly lessened.

RECENT ADVANCES IN CANCER RESEARCH.*

By WILLIAM H. WOGLOM, M.D.,
NEW YORK CITY.

It is obvious that the possession of transplantable tumors in animals places within our hands experimentals methods which it would be quite impossible to carry out on the human subject. Most of the results so obtained may be applied to the tumors of man, because it is now recognized by nearly all authorities that malignant neoplasms of the lower animals are very similar to those affecting the human race. Thus, they occur in old animals, exhibit the invasive type of growth, metastasize, and eventually cause death.

One of the questions that have been recently under investigation is the relation between massage and metastasis. It has been shown by Tyzzer that when tumors are manipulated they tend more often to give rise to secondary nodules, because fragments are broken off and enter the circulation, and this important observation we have been able to amplify at the Crocker Fund. Transplantable mouse tumors which metastasize to some extent in animals whose growths are not massaged, metastasize two or three times as frequently when the tumors are rubbed for one-half minute every other day throughout a period of three weeks (about ten such treatments). Ten different types of neoplasm were investigated in this way, the presence or absence of secondary growths being determined by microscopic examination of the lungs, which are the site most frequently attacked in mice. The increased danger of the patient whose tumor is examined for diagnosis too frequently, or manipulated too roughly during operation, follows so obviously from these findings as to require no further comment.

Other problems which can be easily attacked in animals are those concerning therapeutics. It is known, for example, that animals can be immunized against the transplantation of tumors by preliminary treatment with living normal tissues, of which embryo skin confers the highest resistance; but the treatment of growing tumors with living embryo skin is entirely unsuccessful. If even this potent immunizing material will not cure transplanted neoplasms already established, it is perfectly safe to conclude that dead cells, in the form of extracts or autolysates, will exert no curative effect, since only with living cells can animals be immunized; furthermore, nobody has yet succeeded indubitably in curing propagable neoplasms with autolysates, the few successful attempts that have been reported being explicable on the basis of spontaneous absorption, which is a very common occurrence in transplanted tumors. Yet in spite of all this, and although the cure of spontaneous tumors is a problem different from the cure of transplanted growths, a great many attempts have been made to cure malignant neoplasms in man, with autolysates of embryonal tissue or of tumors. One of the methods investigated has been the inoculation of the patient with emulsions of his own tumor, in which the cells have not been destroyed; this has proved not only useless, but actually harmful, since it has in several instances resulted in proliferation of the inoculated elements and the appearance of a tumor at the injection site.

The therapeutic experiments with radium which Wood and Prime have been carrying out at the Crocker Fund, have been undertaken upon spontaneous tumors of the mouse rather than upon propagable growths, since the former are more nearly comparable with tumors in man than the latter. This is because, like a neoplasm in the human subject, a spontaneous tumor of the mouse is made up of the cells of the animal in which it arises, whereas a transplantable growth is composed of the cells of another animal, that in which the neoplasm primarily developed. While radium sometimes causes a spontaneous malignant mouse tumor to shrink, it has no real curative effect, for when the shrunken nodules are examined under the microscope it can be seen that their periphery contains healthy dividing cells. Indeed, there is evidence to show that neoplastic elements may even be stimulated, where the amount of radium is small. Conditions must be similar in man, for the only malignant tumor which radium will affect permanently is the basal-cell epithelioma of the face, a growth which occupies, however, a very low position in the scale of malignancy.

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The therapeutic usefulness of radium is limited, therefore, at present, to the removal of these epitheliomata, though it will sometimes clean up badly infected neoplasms at other sites, and make them operable. Hence, surgical removal, prompt and thorough, remains the only legitimate method of treatment. Much can be done, however, toward lowering the mortality from malignant growths, by educating the public to seek the best surgical advice obtainable as soon as a tumor appears, and toward preventing the occurrence of neoplasms by removing as far as is possible any source of chronic irritation in persons who have reached the cancer age.

RADIOGRAPHY OF THE SELLATURCICA AND PITUITARY BODY.*

By GEORGE C. JOHNSTON, M.D.,
PITTSBURGH, PA.

THE title of this paper is rather misleading in that one might suppose that the author was in the habit of observing radiographically the pituitary body under all circumstances. This is not at all the case. The limitations of the art in this particular anatomical location are very sharply defined. In the majority of instances we observe merely the bony pocket in which nature has so carefully placed the pituitary and not the gland itself. It is only when the gland has undergone marked pathological changes that its density becomes such with respect to the surrounding tissue as to render its outline visible on the Roentgen plate. It is scarcely necessary to remark that the fluoroscope, so called, is not employed in this type of investigation, also the stereoscopic method, while of undoubted value, is employed secondarily by the author.

In this country the work of Dr. Cushing, of Harvard, has emphasized the prevalence of pituitary disorders to such an extent that the general profession have become quite familiar with the existence of this interesting group of lesions, and a constantly increasing number of these cases are coming under observation of the oculists, rhinologists and neurologists, and are being referred for Roentgen study.

The points of interest which I wish to attempt to show to this society may be summarized as follows: First.—The technique necessary in order that one may obtain satisfactory Roentgenograms of this region. Second—The type of sellar deformation which may be considered within the limits of the normal. Third.—Border line types. Fourth.—The evidence determining the existence of pathology in the pituitary as shown by sellar deformation and absorption. Fifth.—The importance of the early determination of internal hydrocephalus and the recognition of the same by means of the Roentgenogram since internal hydrocephalus may give rise to changes in the visual fields, etc., simulating very closely pituitary disorder.

Technique.

Briefly the technique which the writer has found most satisfactory has comprised the employment of finely-focused, heavy anode transformer tubes lately of the hydrogen type working at a voltage not exceeding 60,000 and usually less, with an exposure of 200 m. a. seconds and fairly fast plates with fine grain. Intensifying screens are of course not employed, since the detail necessary cannot be obtained thereby. Other requisites are absolute immobilization of the head and the employment of small diaphragms. The patient lies upon the side with the head upon an adjustable block just high enough to permit of leveling the head with the table.

The center of the sellaturcica is then determined by indicating a line from the glabella to the external auditory meatus. At a point one and one-quarter inches anterior to the meatus on this line a perpendicular three-quarters of an inch high is erected, and through the point established at the end of this perpendicular the principal ray is passed so as to emerge at a corresponding point on the opposite side of the skull. This method of location has been found by the writer to be sufficiently accurate in the majority of cases to produce a test plate. By this I mean a plate in which the floor of the sella appears as a sharply defined white line and the anterior and posterior clinoidal processes are respectfully superimposed upon their opposites. This plate having been obtained, a stereoscopic pair may be made in addition, it being recommended that the stereoscopic movement be from above downward toward the base rather than from the glabella toward the occiput.

The Types of Sellar Deformation Which May Be Considered Within The Limits of the Normal.

The first consideration in the examination of any sella is that of relative size. It is obviously impossible to form any rule except the most elastic to cover this particular, yet I feel safe in saying that after an observer has examined a few hundred sellas he will immediately notice any disparity in size as compared with the rest of the head. The average size of the pituitary is about 12 millimeters transversely, 5 millimeters from above downward, and about 7 millimeters in the sagittal section. The floor of the sella is also the roof of the sphenoidal sinus. There is a rather constant relation between the thickness of this floor and the size of a sphenoidal sinus. Usually the larger the cubical content of the sinus the thinner the floor. This is an important point in connection with the variety of deformation of the sella to be expected when enlargement of the pituitary occurs. If the floor be thick, the diseased gland may be expected to enlarge at the expense of the clinoidal processes. If the anterior clinoids be well marked, bony processes and the posterior clinoids are rudimentary, enlargement will progress in the direction of the last resistence, in this instance backward, and absorption of the posterior clinoid may be the only evidence of struma.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

On the other hand, if the posterior clinoids be heavy and the anterior light, enlargement forward will occur. In the third instance, if both anterior and posterior processes be of heavy construction, pressure will be manifested downward. The processes will not undergo pressure atrophy, but the pituitary will imbed itself in the sphenoidal sinuses, destroying the roof in this slow journey downward.

Between the anterior and posterior processes there is stretched a rather heavy prolongation of the dura making a membranous roof possessing a central perforation for the infundibulum. Were it not for the presence of this membranous roof we would not be able to make early Roentgen diagnosis of pituitary struma since the gland would simply grow upward and sellar deformation might be expected to be a very late phenomenon.

The following lantern slides have been selected as typical of the several variations from the ordinary, which may still be classed as normal, that is in which we are not justified in postulating pituitary struma. While there is a wide variation in the forms shown, yet in none of them is there any evidence of any particularly rapid pituitary enlargement which might be expected to cause bone atrophy in the region of the pituitary. You will observe also that there is a very considerable variation in the size of the various glands if we assume that in every case the gland entirely occupies the space indicated by the sella.

Having observed these slides, and thereby established some conception of the permissible variation in the limit in size, contour and appearance of a normal fossa, we are ready to consider the changes induced in the region of the sella by pathology in the gland. The very first thing that we shall notice is the difficulty in obtaining satisfactory Roentgenograms of the pituitary region in pathological cases. This is due to the fact that as the pituitary begins to enlarge, a pressure atrophy is manifested upon the entire portion of the sphenoid surrounding the hypophysis, the processes become relatively transparent, they fade and even disappear, the roof of the sphenoidal sinus caves downward under pressure and absorption, the lime salts disappearing first and with them the opacity of the bony structures. Consequently a detection of the outline of the sella becomes increasingly difficult. Stereoscopic plates lend somewhat of aid, but not as much as we would wish for. If the anterior processes disappear first we may expect marked occular symptoms with bitemporal hemianopsia progressing to complete optic atrophy.

If the pressure is backward with destruction of the posterior clinoidal processes early there may not be the same degree of optic atrophy but interference with the function of the posterior lobe with resulting pathologic phenomena, epilepsy, etc., may be expected.

In rare instances the tumor itself may be seen bulging upward in a conical shape elevating the membranous roof of the sella. In one instance which I shall show, the tumor is acorn shaped with its conical apex directed upward and owing to its increased density, is quite easily seen. In this case the processes have suffered but little. In numerous other instances the pressure has been directed downward and the roof of the sphenoidal sinus has given way until the tumor now occupies a large portion of the sphenoidal sinus itself. In other instances the great size of the tumor and the resulting pressure has completely destroyed all the landmarks in the region of the sella and in one instance the enormous tumor itself is visible owing to fibroid and other opaque changes which have taken place within it.

It is impossible to diagnose basilar tumors of the middle cranial fossa lying in the median line, by means of the X-ray alone. At least it is impossible to differentiate them from tumors of the hypophysis. Where there is an erosion of but one of the clinoidal processes it is sometimes possible to diagnose tumors of the anterior and posterior cranial fossa.

Schuller: "(a) Intrasellar tumors of the hypophysis cause a widening and deepening of the sella of such a nature, that its floor is thinned and approaches nearer to the floor of the middle cranial fossa, further, the dorsum sellae is thinned, displaced backward and inclined and appears to be lengthened. The transition of the contours of the dorsum sellae into the planum sphenoidale forms an acute angled prominence. The anterior clinoidal process appears normal or pushed upwards, and its under surface hollowed out or abnormally plump. On the rest of the skull is frequently found the changes of acromeglia (thickening of the wall of the skull, bony ridges, and enlargement of the pneumatic spaces).

"(b) Extra sellar tumors of the hypophysis cause a flat dish like widening of the sella, whereby the dorsum sellae is thinned and shortened, the anterior clinoid process sharpened and shortened, the tubercle of the sella eroded, so that the floor of the sella is not alone thinned but approaching but slightly the floor of the middle cranial fossa, appears to go over in an obtuse angle into the planum sphenoidale. On the rest of the skull there is to be found no changes of acromeglia but rather a thinning of the walls due to an increase of the intracranial pressure.

"(c) Very large tumors of the hypophysis cause a total destruction of the body of the sphenoid; in this stage it is impossible to differentiate those of intra, and extra sellar origin, at most the condition of the anterior clinoid process along with the other changes in the skull point the proper way. The guide cited above, must answer for the majority of all tumors of the hypophysis, and before their value in diagnosis can be discussed, the following considerations must be mentioned. The destruction of the sella due to tumors of the hypophysis has a great similarity to that occasioned by other disease processes of the base of the brain, as well as with those which are associated signs, which due to general increase of the cerebral pressure causing erosions of the inner surface of the skull."

Verbal description alone is absolutely inadequate to convey an accurate impression of the changes to be observed with any pituitary disease and only patient, careful, continued observation of large numbers of radiograms properly made of the base of the skull will confer upon the observer the ability to correctly diagnose the presence of pituitary disease from the radiogram alone.

CHANGES ABOUT THE PITUITARY RATHER CONSTANTLY PRESENT IN CASES OF EPILEPSY NOT ATTENDED BY EVIDENCE OF OPTICAL CHANGES OR OTHER EVIDENCE OF PITUITARY STRUMA:

Three years ago in this same hall, before the American Neurological Association, the author and Dr. T. M. T. McKennan, of Pittsburgh, Pa., called attention to certain rather constant variations occurring about the sellaturcica and the anterior fossa of the skull in cases of so-called idiopathic epilepsy, these changes consisting of a more or less marked hyperostosis involving the clinoidal processes, the anterior fossa and in some instances the post-clinoidal region. In some of the cases examined this process which we then described as a local acromegaly had progressed to such an extent that the anterior and posterior clinoidal processes seemed to meet and the pituitary fossa itself in consequence was apparently encroached upon to a considerable degree. These findings have been confirmed by various observers but no further light has been thrown upon the subject. Since that time a large number of additional cases have been examined and the findings appear with rather constant regularity.

Shuller calls attention to a marked enlargement of the diploic vein canals in one-half of the skull rising from deepened pacchionian grooves which frequently appear as stellate ramifying venous canals. These are to be taken as evidence of an interference with the blood flow. Some of these cases appear very much like spiders on the side of the skull. The appearance is striking and it is frequently accompanied by tumor in the cortex. One case of ours which came to operation at this point showed excessive hemorrhage, the tumor, however, was not discovered at operation and was later found to be a deep lying glioma.

Shuller in his new work calls attention to the localized thickening at the base of the skull and involving also the frontal floor, in cases of epilepsy; he, however, gives no credit to the author for the investigation along this line although he was present at the meeting when these investigations were announced.

INTERNAL HYDROCEPHALUS.

In all cases, particularly children, referred for an examination of the pituitary, a very careful study should be made of the condition of the internal table particularly over the region of the frontal. All cases of optic atrophy where an increase of intercranial pressure is suspected should be observed with exceeding care in order that internal hydrocephalus, if present, may be determined at the earliest possible moment.

I believe in every such case with sufficiently careful scrutiny, evidence of pressure as shown by the molding of the internal table to the contour of the convolutions of the anterior lobes will be found to be present at least by the time that any considerable degree of contraction of the visual field is present. The development of this condition in children is so insidious that very frequently the first suspicion of the parents will be aroused by the complaint of headache and the inability of the child to keep out of the road of the furniture. These intercranial markings are very faint in the beginning; later pressure absorption produces the characteristic impressions of the convolutions. In some instances the occurrence of both internal and external hydrocephalus will mask the appearance on the internal table, the convolutions being separated from the table by the water cushion of the external hydrocephalus, but in such cases the existence of pressure may be suspected by the change in angle in the middle fossa of the base.

We see therefore that the diagnosis of pathological conditions in the region of the base depends upon: First.—A technique permitting its possessor to produce radiograms of a certain standard of excellence which must be made with strict attention to certain angles of incidence of the ray, and in addition a sufficient familiarity with the normal appearance of these structures to permit of the recognition of the slight variations that are alone manifest in early disease.

Syphilis, fortunately, rather avoids the base, preferring the flat bones of the skull. We have observed but a single case of what we believe to be specific pituitary disease, and this may have merely been pituitary struma in a syphilitic.

Medical Society of the State of New York

LEGAL DEFENSE.

Attention is called to the following resolution adopted by the Council, December 5, 1913, and farther adopted by the House of Delegates on April 27, 1914:

"Members who have been dropped for non-payment of dues, if reinstated shall not be entitled to malpractice defense for acts committed during the time they were not members of the Society."

This is the law of the Society and it is a just law. Legal defense is an expensive process. Members who have paid their dues should not be taxed for the defense of those who have lost membership.

There are today (October 23) 1,294 delinquents. If any member be dropped on December 31st and is subsequently reinstated, he cannot be defended in a prosecution for alleged malpractice which occurred between January 1st and the date of his reinstatement.

Floyd M. Crandall, *Secretary.*

NOTES BY THE SECRETARY.

A Message to the Members and County Society Officers.

I wish to speak this month on the subject of "Constitutions and By-Laws." It might seem unnecessary to say that every County Society should have at least one copy of its by-laws available for use. Each County Medical Society has adopted by-laws at some time and many of them have adopted a constitution. In some cases they are out of print or have been lost, and in a few societies there are none available for use. In all but the smaller societies a constitution is desirable. It should clearly set forth the fundamental principles of organization and be susceptible to change only upon careful deliberation. The by-laws should contain rules which may be readily changed with changing conditions.

Certain judicial functions are vested in the secretary, particularly in controversies involving by-laws. Most of these controversies must be decided upon the constitution or by-laws of the County Society. In many cases the Constitution of the State Society and American Medical Association are also involved.

I have in my desk a copy of the by-laws of every County Society except two. They are invaluable, as they must be referred to in the decision of nearly every controversy brought before the secretary.

I would urge, therefore, that every County Society make certain that it has by-laws available for use. I would ask, also, that a copy of revised by-laws be sent to the secretary as soon as adopted, that he may keep them on file.

I would call attention to the fact that every amendment to the constitution or by-laws made by a County Society must be submitted to the State Society for approval before it can be of binding force. That there may be no delay in approving the amendments, the Council appoints each year a committee with power to review and approve them. The secretary is chairman of this committee and every amendment should be sent to him.

It should be understood that each County Society may adopt such constitution and by-laws as it may see fit, providing that there are no provisions in conflict with the Constitution of the Medical Society of the State of New York or the State law. The committee has power to determine those two points only. It has no power and no desire to dictate or influence the action of the County Societies in determining their fundamental laws.

Another point should be strongly urged upon societies and their officers, and that is not to decide any question without consulting the by-laws. Questions often arise which bring up new points of view and it is never safe to take action or render an opinion before reading the by-laws. Some of the most troublesome questions that have been brought to me for decision, have resulted from failure to observe this simple rule. Opinions have been rendered by officers which were not constitutional and troubles have followed which might have been avoided, had the officers followed the plain language of their own by-laws.

I would therefore impress upon the officers of County Societies the following important rule: *Never render an official opinion or take official action without first consulting the by-laws.* F. M. C.

District Branches

FIRST DISTRICT BRANCH

Annual Meeting, Poughkeepsie.

October 14, 1916.

The meeting was called to order at 11.15 by the President, Dr. James E. Sadlier.

The minutes of the last meeting were read and approved.

The report of the Executive Committee was received and approved.

The following officers were elected: President, Richard A. Giles, Cold Spring; First Vice-President, Joseph B. Hulett, Middletown; Second Vice-President, George A. Leitner, Piermont; Secretary, Charles E. Denison, New York; Treasurer, John A. Card, Poughkeepsie.

SCIENTIFIC SESSION.

Address by the President, James E. Sadlier, M.D., Poughkeepsie.

"The Crucial Age of Men," W. Stanton Gleason, M.D., Newburgh.

"The Early Diagnosis of Cancer," Parker Syms, M.D., New York.

"Experiences in Serbia During the War," Ethan F. Butler, M.D., Yonkers.

"Experiments in the Use of Moving Pictures in Teaching the Technic of Surgery," John A. Wyeth, M.D., New York.

"Colonic Stasis," William S. Bainbridge, M.D., New York.

"Diagnosis and Treatment of Acute Infections of the Nasal Accessory Sinuses," Milton A. McQuade, M.D., Newburgh.

"Some Clinical Experiences in Heart Disease," J. H. M. A. von Tiling, M.D., Poughkeepsie.

"Report of a Milk Born Epidemic of Infantile Paralysis," John C. Dingman, M.D., Spring Valley.

SECOND DISTRICT BRANCH

Annual Meeting, Brooklyn.

October 30, 1916.

The meeting was called to order at 8.50 P. M. The President, Dr. James S. Cooley, in the Chair.

A letter from Dr. Charles Eastmond, the Secretary, was read and it was duly moved, seconded and carried that Dr. W. H. Bayles act in his place, as temporary Secretary.

The next order of business was the nomination of officers for the ensuing year. It was moved, seconded and carried that a nominating committee be appointed by the Chair. The President then appointed Drs. Frank Overton, Suffolk County, J. H. Bogart, Queens-Nassau, and William Browning, Kings, to act upon this committee.

The Committee reported the following nominees:

President—Arthur H. Terry, Patchogue.
First Vice-President—Frederick C. Holden, Brooklyn.
Second Vice-President—Arthur D. Jacques, Lynbrook.
Secretary-Treasurer — Richard F. Seidensticker, Brooklyn.

On motion duly seconded and carried the Secretary cast one vote for these nominees and they were declared duly elected.

There being no further business transactions, the meeting proceeded to the scientific session.

SCIENTIFIC SESSION.

President's Address, "Our District Branch," James S. Cooley, M.D., Mineola.

Symposium on Anterior Poliomyelitis:

a. "Symptomatology of Acute Anterior Poliomyelitis," Bernhard A. Fedde, M.D., Brooklyn.

b. "The Laboratory Diagnosis and Serum Treatment of Anterior Poliomyelitis," Abraham Zingher, M.D., New York Research Laboratory, New York City.

c. "The Orthopedic After Care of Paralysis, Resulting from Anterior Poliomyelitis," Jaques C. Rushmore, M.D., Brooklyn.

Dr. Tinker, President of the Medical Society of the State of New York, then spoke upon his visits to the various branch Societies of the State, the object and purpose of the State Society, and made a plea for larger membership in the State Society.

Dr. Crandall, the Secretary of the State Society, was also present and spoke upon the value of the District Society meetings.

Dr. Frank Overton, Patchogue, moved that a vote of thanks be extended by the Society to the speakers of the evening for their excellent papers. This was seconded and unanimously carried.

THIRD DISTRICT BRANCH

Annual Meeting, Cobleskill.

September 26, 1916.

The following officers were elected: President, James B. Marsh, M.D., Troy; First Vice-President, Luther Emerick, M.D., Saugerties; Second Vice-President, James H. Mitchell, M.D., Cohoes; Secretary, Herbert LeR. Odell, M.D., Sharon Springs; Treasurer, Clark G. Rossman, M.D., Hudson.

The attendance was large and the Scientific Program, a most excellent one, was opened by the

President's Address, Alvah H. Traver, M.D., Albany.

Address, Martin B. Tinker, M.D., President Medical Society of the State of New York, Ithaca.

"Infective Arthritis," William T. Shields, M.D., Troy.

"Poliomyelitis," Augustus B. Wadsworth, M.D., Director, State Hygienic Laboratory, Department of Health, Albany.

Discussion, Herman C. Gordinier, M.D., Troy.

After the meeting the Society was entertained at dinner by the Schoharie County Medical Society. A visit to the County Fair also added to the enjoyment of all the members present.

FOURTH DISTRICT BRANCH

Annual Meeting, Plattsburg.

August 24, 1916.

The business session was called to order by the President, Dr. Julius B. Ransom. The following officers were elected: President, Lew H. Finch, Amsterdam; First Vice-President, Thomas A. Rogers, Plattsburg; Second Vice-President, Richard A. Hutchins, Ogdensburg; Secretary, Frederic J. Resseguie, Saratoga Springs; Treasurer, George H. Oliver, Malone.

Drs. C. Stover, C. S. Prest and A. W. Fairbanks, as a Committee on Resolutions, reported as follows:

Resolved, That the Council of the Medical Society of the State of New York be requested:

(a) To consider the advisability of uniting or at least co-ordinating the work of as many as possible of those whose influence may be of service in securing the passage of such legislation as is favorable to the improvement of the standards of medical practice throughout the state;

(b) And the employment of a legislative secretary for such time each year as is thought advisable.

Resolved, That this Society expresses its hearty approval of the steps taken by the medical societies of the nation that have been crystallized in adequate preparedness legislation, and we do further urge every member of this society to add his individual effort to this movement by attending the schools of instruction that are being conducted by the military authorities of the United States at such camps as the one at Plattsburg now open to all medical men.

Resolved, That this Society, while urging the prompt registration of births and deaths by physicians and recognizing this function as his obligation and duty, also is of the opinion that the service rendered thereby is deserving of a commensurate fee.

Resolved, That this Society declares its opposition to the arbitrary practice of life insurance companies that in the face of increasing services required by modern methods of medical examination, still refuse to pay the long-established fee of $5 for medical examinations. It also opposes the recognition by companies of two grades of examinations based upon the amount of insurance, rather than upon an equal service to be rendered in all cases.

After a brief address by the President, the following scientific program, which elicited more than usual attention, was presented:

"Perforated Gastric Ulcer," Grant C. Madill, M.D., Ogdensburg.

Discussion based on four recent cases, Robert S. Macdonald, M.D., Plattsburg.

"The Trudeau School of Tuberculosis, Its Aims and Scope," Edward R. Baldwin, M.D., Saranac Lake.

Martin B. Tinker, M.D., President, and Floyd M. Crandall, M.D., Secretary of the Medical Society of the State of New York, were present and made interesting and instructive addresses.

Harry R. Gaylord, M.D., Director of the State Institute for the Study of Malignant Disease, and R. A. Lambert, M.D., of the College of Physicians and Surgeons, Columbia University, discussed "Cancer Immunity."

Colonel Henry Page, M.R.C., U. S. A., spoke on "The Duty of the Physician to His Country," and was followed with a few brief remarks by Lieutenants Halsey and Adams, M.R.C.

The scientific program was concluded with an interesting talk, illustrated with lantern slides, on

"Some Experiences with Wounds of Modern Warfare," by Lyman G. Barton, Jr., M.D., Willsboro, after which a most instructive trip through, and demonstration of, the Military Training Camps, then in operation at Plattsburg, was conducted by Major Wallace C. DeWitt, M.C.

The meeting was greatly favored by the presence of upward of forty members of the regular army, and reserve medical corps, and a delightful luncheon was served, with the Medical Society of the County of Clinton as hosts.

The attendance was large, and the meeting will long be remembered as one of great interest and profit.

FIFTH DISTRICT BRANCH

Annual Meeting, Watertown.

October 4, 1916.

The meeting was called to order at 10.20 A. M. by the President, Dr. James F. McCaw.

Short address of welcome by the President.

Moved and seconded that the business session be adjourned until the beginning of the afternoon meeting. Carried.

An address was delivered by Hon. Elon R. Brown, of Watertown, taking as his subject, "The Higher Duty of the Medical Profession to the State."

The Symposium on Infections was opened by Gilbert D. Gregor, M.D., of Watertown, with a paper on "General Infections," followed by Clarence E. Coon, M.D., of Syracuse, who covered the subject from the standpoint of the orthopedic surgeon. Harold S.

Vaughan, D.D.S., of New York, who was to read a paper on "Infections from the Teeth," was unable to be present. "Infections from the Nose, Throat and Ear" was the subject of the paper read by T. H. Halsted, M.D., of Syracuse.

Discussion of this symposium was opened by Charles D. Post, M.D., of Syracuse; followed by Drs. Crockett, of Oneida, Murray and Alsever, of Syracuse, and Fox, of Fulton. The discussion was closed by Drs. Halsted, Coon and Gregor.

The meeting was fortunate in having present Dr. Tinker, of Ithaca, the President of the State Society, and Dr. Crandall, of New York, its Secretary, both of whom made appropriate remarks.

The meeting was then adjourned for a luncheon which was given in the Black River Valley Club by the Medical Society of the County of Jefferson, to the members of the Branch.

The afternoon session was opened at 2.50 and the minutes of the last meeting were read and approved.

An invitation was extended by Dr. Hervey, President of the Oswego County Society, for the next annual meeting to be held at Oswego. This was referred to the Executive Committee.

An eulogy on the life and work of Dr. Henry Leopold Elsner was rendered by Dr. George M. Price, of Syracuse. Moved and seconded that the eulogy be spread upon the minutes of the Society and a copy be sent to the family. Carried.

The Scientific Session was opened with a paper on "Benign Tumors of the Breast with Their Relation to Malignancy," Frederick H. Flaherty, M.D., of Syracuse.

Discussed by Gilbert D. Gregor, M.D., Watertown.

"Urinary Infections of Early Childhood," Dr. Henry L. K. Shaw, M.D., Albany.

Discussed by Edward J. Wynkoop, M.D., Syracuse; Norman L. Hawkins, Watertown; Dwight H. Murray, M.D.; W. D. Alsever, M.D., Syracuse; T. Wood Clarke, Utica, and Joseph D. Olin, M.D., Watertown.

Eugene H. Carpenter, M.D., Oneida, delved into the history of medicine, taking as his subject "Our Forefathers," illustrating his paper with lantern slides.

"Bone Transplantation," Frederick R. Calkins, M.D., Watertown.

"Some Unusual Phases of Lead Poisoning," Edward C. Reifenstein, M.D., Syracuse.

Discussed by W. D. Alsever, Syracuse.

The last paper of the meeting was by Walter H. Kidder, M.D., Oswego, the title being, 'Our Insane and Incompetent."

Discussion Hersey G. Locke, M.D., Syracuse, and Gilbert D. Olin, Watertown.

A vote of thanks was extended to the Medical Society of the County of Jefferson for their hospitality.

SIXTH DISTRICT BRANCH.

Annual Meeting, Cortland.

October 3, 1916.

The meeting was held in the spacious quarters of the Elks' Club and was called to order by the President, Dr. Arthur W. Booth. The attendance of 150 marks a new record for this branch.

It was unanimously voted to hold the next meeting at Watkins.

Clarence William Lieb, M.D., Watkins, headed the Scientific Program with a paper on the "Significance and Technic of Cardiac Functional Tests."

I. H. Levy, M.D., Syracuse, presented an interesting paper on "X-Ray Diagnosis," with stereopticon demonstrations, which was discussed by John A. Bennett, M.D., Elmira.

Edward Gillespie, M.D., Binghamton State Hospital, gave some very valuable observations on "The Prevention of Insanity." Discussed by Arthur J. Capron, M.D., Owego.

"The Relation Between Infections and Intraocular Conditions," by Lee Masten Francis, M.D., of Buffalo, showed plainly that it stands the general practitioner well in hand to be a pretty fair specialist and also that the specialist must extend his field of observation beyond the eye. Discussed by George M. Case, M.D., Elmira.

A fine luncheon was served, and the afternoon session was presided over by the Vice-President, R. Paul Higgins, M.D., of Cortland. Martin B. Tinker, M.D., Ithaca, President of the Medical Society of the State of New York, urged the members to co-operate in the campaign to secure new members.

Floyd M. Crandall, M.D., of New York City, Secretary of the State Society, also made a few remarks.

Robert P. Bush, M.D., Horseheads, Member of Assembly, discussed in his usual interesting and forceful manner the subject of "Rural Health Problems," from the standpoint of the legislator, and criticised the division of responsibility between the local town health officer and the Sanitary Supervisor.

Ross G. Loop, M.D., Elmira, read a paper on "Specific Immunization Against the Tubercle Bacillus." Discussed by H. E. Merriam, M.D., and J. A. Conway, M.D.

Charles H. Gallagher, M.D., Ithaca, Member American Association of Anesthetists, presented a paper on "Newer Methods of Anesthesia, with Especial Reference to Nitrous Oxide and Oxygen." Discussed by George M. Gilchrist, M.D., Groton, and James J. Parsons, M.D., Cortland.

Daniel P. Murphy, M.D., Elmira, read a paper on "Brain Abscess with Report of Cases." Discussed by Martin B. Tinker, M.D., Ithaca, and George M. Case, M.D., Elmira.

A vote of thanks was tendered the physicians of Cortland and vicinity for their excellent entertainment.

SEVENTH DISTRICT BRANCH.

Annual Meeting, Rochester.

September 28, 1916.

The meeting was called to order by the President, Dr. William Mortimer Brown.

There being no unfinished business nor new business the literary program was taken up.

The president made a few remarks and then read a short paper, "Anti-Partum Care of Women in Pregnancy."

Dr. Armstrong offered the following resolution which was unanimously adopted:

Resolved, That the Seventh District Branch of the Medical Society of the State of New York hereby expresses its hearty appreciation and approval of the intelligent interest taken by Governor Charles S. Whitman in the conservation of the public health and the prompt action taken to aid the State Health Department in its efforts to control the recent epidemic of infantile paralysis.

Dr. Ingersol offered the following resolution which was unanimously adopted:

Resolved, That the Seventh District Branch of the Medical Society of the State of New York, at its Tenth Annual Meeting, held in the City of Rochester, September 28, 1916, recognizes with hearty appreciation the efficient work of Hermann M. Biggs, M.D., LL.D., Commissioner of Health, and his earnest assistants in the New York State Department of Health, in their efforts to prevent the spread of infantile paralysis.

"Application of the So-called New Wartime Antiseptics to the Surgery of Civil Life," Charles W. Hennington, M.D., Rochester. Dr. Hennington's paper was much appreciated.

Dr. Roberts, of Philadelphia, discussed the paper and said he had been well paid for coming to this meeting by hearing this paper alone.

Address by the President of the Medical Society of the State of New York, Martin B. Tinker, M.D., Ithaca. He said there are 6,000 men outside of the State Society, a large part of whom should be brought in. In his remarks he especially emphasized the first articles of the Constitution.

"A Composite Osteoplastic Operation for Wide Congenital Clefts of the Palate," John Roberts, M.D., Philadelphia.

Discussion by John Marvin Ingersol, M.D., Cleveland, who advised the operation for cleft palate and hair lip to be done early, the earlier the better, because of the eventual effect on speech. It seems to me that it is better in most cases to anchor the ligatures over metal plates inside the cheeks on account of the danger of suppuration. Avoid injury to the anterior and posterior palatine vessels. The value of sending the child to a specialist in phonation cannot be overestimated. Do not let the assistant use sponges harshly but be very gentle so as not to injure the parts.

Dr. McDowell: "In my experience I prefer a suction apparatus instead of sponges."

Dr. Roberts closed the discussion: "I agree with Dr. Ingersol as to the necessity of being careful not to injure the tissues. I use the Ruperts method of inserting the anæsthesia. I use the Dobells solution before operation, on the operating field."

"Experiences with the Bone Graft in the War Zone of France," illustrated with moving pictures and slides, by Fred H. Albee, M.D., New York. Dr. Albee showed slides which were very instructive and made some very interesting remarks as to his experiences at the front in the war zone.

Discussed by Howard Prince, M.D., Rochester: "I believe the bone graft is the very best thing to stimulate osteogenesis. I am doubtful as to the grafts living. Personally I do not think the periosteum is necessary to good results."

Dr. Bonner, of Buffalo, reported sewing on a phalanx of a finger completely amputated, which grew on.

Dr. Albee closed the discussion.

The following resolutions were passed:

Resolved, That the Seventh District Branch of the Medical Society of the State of New York hereby recommends to the House of Delegates that a Standing Committee which shall be called "A Committee on Counsel," be created. That the duties of this committee shall be to advise with and consult the Counsel and to have such other power over the legal matters of the Society as the House of Delegates may prescribe.

Resolved, That the Seventh District Branch of the Medical Society of the State of New York believes that additional revenue should be provided for the State Society for the purpose of paying our attorney a reasonable increase of salary and for the employment of additional counsel and their expenses so that the efficiency of our legal protection may be maintained and increased.

"Seventeen Years of Organized Malpractice Defence," James Taylor Lewis. Mr. Lewis' paper was of special interest to the profession. He said only 2 per cent of malpractice suits should go to the jury and 98 per cent should be thrown out.

"Prognosis in Infantile Paralysis," Robert Lovett, M.D., Boston.

Discussed by Drs. Whitbeck and Winters of New York, Mersenbach of Buffalo, and closed by Dr. Lovett.

"Practical Methods for Conserving the Bad Risk Patient," George W. Crile, M.D., Cleveland.

Discussed by Drs. Tinker and Zimmer. The discussion was closed by Dr. Crile: "I have found in very bad cases of goiter where rest will do no good, that injections of boiling water in one to two dram doses does much good."

"Is Medicine a Business?" John M. Swan, M.D., Rochester.

Discussed by Drs. Henry L. Winter, of Cornwall; Albert T. Lytle, of Buffalo, and William B. Jones, of Rochester.

EIGHTH DISTRICT BRANCH.

Annual Meeting, Batavia.

September 7, 1916.

Business Session, A. M.

Meeting called to order by the President, Dr. Albert T. Lytle, M.D., at 10.30 A. M., with an attendance of 225.

On motion, the minutes of last meeting were adopted as published in the Journal of the Medical Society of the State of New York.

A report of the Executive Committee was read and accepted.

A motion was made and carried that the consideration of new business be postponed until 2 P. M.

Scientific Session, A. M.

"Operative Obstetrics," Irving W. Potter, M.D., Buffalo.

Discussion: Peter W. van Peyma, M.D., James E. King, M.D., T. C. Goldsborough, M.D., Buffalo; W. Mortimer Brown, M.D., Rochester; John W. Le Seur, M.D., Batavia; C. A. Tyler, M.D., Alden.

"Presentation of Specimens of Fœtus in Bladder and of Ruptured Gall Bladder," Julius Richter, M.D., Buffalo.

"Supra-public Prostatectomy—Demonstrating Operative Technic with Animated Drawings," William E. Lower, M.D., Cleveland, O.

"Case Presentation—Chronic Proctitis," J. Henry Dowd, M.D., Buffalo.

Discussion: C. W. Bethune, M.D., Buffalo.

Business Session, P. M.

Meeting called to order by the President, Albert T. Lytle, M.D., at 2 P. M.

A motion was made and carried that the next meeting of the Society be held at Buffalo.

A motion was made and carried that the thanks of the Society be extended to Drs. William E. Lower, Martin B. Tinker, William Francis Campbell, W. Mortimer Brown, John M. Swan and G. Kirby Collier for their assistance on the program.

A motion was made and carried that a vote of thanks be extended to the officers and members for the entertainment provided by the Medical Society of the County of Genesee.

Martin B. Tinker, M.D., President of the Medical Society of the State of New York; Floyd M. Crandall, M.D., Secretary of the Medical Society of the State of New York, and W. Mortimer Brown, M.D., President of the Seventh District Branch, addressed the Society.

Scientific Session, P. M.

"Causes of Goiter," Martin B. Tinker, M.D., Ithaca, President of the Medical Society of the State of New York.

"Case Presentation," G. W. Cottis, M.D., Jamestown.

Discussion: John M. Swan, M.D., Rochester; George F. Cott, M.D., DeLancey Rochester, M.D., Buffalo; W. D. Johnson, M.D., Batavia.

"Case Presentation—Cerebro-Spinal Meningitis," De Lancey Rochester, M.D., Buffalo.

"Cancer of the Rectum," William F. Campbell, M.D., Brooklyn.

Discussion: Descum C. McKenney, M.D., Buffalo; William R. Thompson, M.D., Warsaw.

"Anterior Poliomyelitis," Edward A. Sharp, M.D., Buffalo.

Discussion: DeWitt H. Sherman, M.D., Buffalo.

"Presentation of Two Cases of Deformity from Anterior Poliomyelitis," Prescott Le Breton, M.D., Buffalo.

"Pituitary Body and Pituitarism," James A. Gibson, M.D., Buffalo.

"Case Presentation," F. Park Lewis, M.D., Buffalo.

Discussion: G. Kirby Collier, M.D., Sonyea.

County Societies

MEDICAL SOCIETY OF THE COUNTY OF ALBANY.

SEMI-ANNUAL MEETING, ALBANY,

OCTOBER 18, 1916.

The special committee on memorial appointed to report on the deaths of Dr. Adam J. Blessing and William D. Aldrich presented the following "In Memoriams":

DR. ADAM J. BLESSING

In recording the death of Dr. Adam J. Blessing, who passed into the great beyond on August 6, 1916, your committee wishes to place on record an appreciation of the loss suffered by the community and by the profession in his untimely end. Adam J. Blessing was born in McKnowsville, Albany County, September 5, 1864, educated in the schools of this city and an alumnus of the Albany Medical College in the class of 1886. He entered general practice here after having served a creditable interneship at St. Peter's Hospital.

Handicapped at the outset of his professional career by symptoms of incipient tuberculosis, he manfully faced the struggle not only to overcome the dread disease but while doing so to attain a creditable position in his chosen profession. How successful he had been in both these endeavors, we all know. It was not long before the public recognized in him a sincere medical adviser and a true family physician. Soon his days and to a great extent his nights were crowded with his ministrations to a large and devoted family practice. This he accomplished ever cheerfully and always without a murmur. To most of us his death came as an unexpected shock and to all of us as a personal loss. He was a modest, kindly and unassuming physician, devoted to his patients, for whom he practically sacrificed his life while still at the height of his usefulness, considerate and loyal to his fellow practitioners, upright and without guile in the affairs of life—A man who has played well, even nobly, his part in life.

(Signed) ANDREW MACFARLANE.
ROBERT BABCOCK.
October 18, 1916. ORVIS A. BRENENSTUHL.

DR. WILLIAM DAVID ALDRICH

Dr. William David Aldrich, a graduate of the Albany Medical College in 1910, passed away at the Albany Hospital Thursday morning, September 28, 1916, from a meningitis following a septicemia due to an infection on his left hand and nose.

Dr. Aldrich was born in Weavertown, Warren County, on July 6, 1883, and received his preliminary education fitting him for the practice of medicine at Syracuse University and the Albany Medical College. Following his graduation from the latter institution he served his interneship at the Albany Hospital from which he graduated in June, 1911. He then associated himself with Dr. James N. Vander Veer for the further study of surgery and especially genito-urinary surgery; and on September 1, 1916, had prepared to move to Binghamton there to enter upon the full practice of his profession.

A man of calm deliberation, cordial in his relation with patient and physician, beloved by all, his demise has been more keenly felt to those to whom he was near and dear. He came from a family of physicians. His father, one maternal and three paternal uncles having studied medicine.

By virtue of appointment therefore from the president of the Medical Society of the County of Albany, the undersigned as a committee would offer the following resolutions and further suggest that they be inscribed on the minutes of the Society and a copy of the same be sent to his parents and printed in the daily papers:

WHEREAS, The Supreme Architect of the Universe has seen fit in His Allwise Providence to summon home one of the humble laborers in the vineyard who bore his share of the work without murmur or complaint and tried to the utmost to relieve human suffering to the best of his ability, therefore; be it

Resolved, That we, the members of the Medical Society of the County of Albany bow humbly to the plans of Him, in the furtherance of which we know not of, and accept His divine decree in the hope that we may all be gathered into His household; and further be it

Resolved, That we extend our heartfelt sympathy to his bereaved parents; that we enter these resolutions upon the minutes of our Society as an indication of our love and respect for William David Aldrich; that we cause these resolutions to be printed in the daily papers as a token of our sorrow; and finally that we transmit a copy of these resolutions to his father and mother.

(Signed) JAMES N. VANDER VEER.
HARRY S. HOWARD.
HOWARD E. LOMAX.

The Board of Censors made its report and gave the following recommendations:

1. That arrangements be made for meetings of the Society in the Albany County Building.
2. That the Society continue its action in reference to licensing until a final decision has been obtained.
3. That a Committee on Publication be appointed.
4. That the matter of advertising be called to the attention of the Society.

The Vice-President's Address: "Venereal Disease in the Army," Eugene E. Hinman, M.D.

The paper was discussed by Drs. Lipes, Rooney, Haswell, Lewi and Hannock.

There was a discussion relative to the form of the school certificate, which physicians are often called upon to give to the school authorities, as to how much information a physician should impart to the school authorities relative to the condition present in his patient.

MEDICAL SOCIETY OF THE COUNTY OF ERIE

REGULAR MEETING, BUFFALO.

October 16, 1916.

The meeting was called to order in the Buffalo Medical College with an unusually large number of members present, to hear the addresses of officers of the Medical Society of the State of New York. Drs. Martin B. Tinker, and Floyd M. Crandall and James Taylor Lewis, Esq., President, Secretary and Attorney for the State Society respectively. Dr. W. Mortimer Brown, of Rochester, President of the Seventh District Branch, was likewise present as a guest of the Society and delivered a brief address.

It was decidedly a State Society meeting, all the addresses were eloquent and to the point, each one treating his subject in an admirable manner and commanding the closest attention of every member present

At the conclusion of the addresses a hearty vote of thanks was tendered to all the speakers of the evening, who had come a long distance in order to become personally acquainted with the Society.

Nominations of officers for the ensuing year to be voted upon at the annual meeting in December were made as follows: President, Irving W. Potter, M.D., First Vice-President, George M. Cott, M.D.; Second Vice-President, James E. King, M.D.; Secretary, Franklin C. Gram, M.D.; Treasurer, Albert T. Lytle, M.D.; Censors, John D. Bonnar, F. E. Fronczak, Arthur G. Bennett, A. D. Carpenter and F. A. Valenti; Chairman, Committee on Legislation, Harvey R. Gaylord, M.D.,; Chairman, Committee on Public Health, Nelson G. Russell, M.D.; Chairman, Committee on Membership, William F. Jacobs, M.D.; Chairman, Committee on Economics, John V. Woodruff, M.D. Delegates to State Society: C. G. Stockton, M.D.; I. W. Potter, M.D.; A. W. Hurd, M.D.; E. L. Frost, M.D.; E. R. Hatch, M.D.; G. W. Wende, M.D.; H. R. Hopkins, M.D.; A. J. Colton, M.D., and S. A. Dunham, M.D

The following thirty-five candidates were elected to membership: Drs. von Renner, Heller, Barone, Thompson, Stanbro, Coakley, Kiebala, Hayes, Conlon, Healey, Long, Panzarella, Bork, Johnson, Pringle, Reinstein, Levy, Lormor, Fairbanks, Muscato, Aaron, Hoffman, Burkel, Sampson, Johnson, DeGraff, Shaver, Persons, Glaeser, Hardy, Vogt, Horwitz, Hill, Brumberg, Miller; Drs. Clarke and Walz were reinstated.

Dr. Grover W. Wende offered the following resolution, which was referred to the Council:

Resolved, That the Medical Society of the County of Erie believes that the matter of defense from malpractice suits is of vital importance to the various members of the State Society and that while that defense has until the present time been conducted in a most satisfactory manner, a wise forethought should lead us to provide for contingencies which may reasonably be anticipated. We believe that additional counsel should be employed and trained in this highly special form of legal practice, and, further;

That, inasmuch as the present revenues of the State Society are not sufficient to provide for this greatly needed progress we believe that the annual dues of the State Society should be increased to $4.00 per year.

This resolution was referred to the Council.

On behalf of Dr. Lucien Howe, who was unable to be present, Dr. John V. Woodruff presented the following resolution, which was also referred to the Council:

Resolved, That the Committee on Economics be requested to report at its next meeting on the possibility of providing small but substantial relief to physicians who have been members in good standing of this Society for more than fifteen years, and who have become incapacitated from active work because of age, illness or other causes.

Moreover, if such assistance seems possible, the committee is hereby directed to present a plan to provide for this in accordance with the resources of the Society.

Dr. Benedict invited all the members of the Society to attend the annual meeting of the Central New York Medical Association, which was to be held in Buffalo on October 19, 1916. Dr. Benedict offered the following resolution, which was seconded by Dr. Wende and carried.

Resolved, That the secretary be empowered to issue certificates to such members who wish to join the Central New York Medical Association.

The Society then adjourned, after which a collation was served in the College Library.

MEDICAL SOCIETY OF THE COUNTY OF ESSEX.

Annual Meeting, Port Henry.

October 3, 1916.

The meeting was called to order, in the Lee House, at 2.15 P. M., by the President, Dr. M. H. Turner.

Roll call showed the following members present: Drs. L. G. Barton, L. G. Barton, Jr., J. Breen, W. F. Brown, N. H. Liberty, C. R. Payne, R. T. Saville, N. T. Sherman and M. H. Turner. Dr. T. J. Cummins was present as a guest.

The minutes of the last meeting were read and approved.

The President appointed as nominating committee for officers for 1917: Drs. N. T. Sherman, L. G. Barton, Jr., and R. T. Saville, who reported the following nominations: President, T. H. Canning, Port Henry; Vice-President, J. P. J. Cummins, Ticonderoga; Secretary, C. R. Payne, Wadhams; Treasurer, W. T. Sherman, Crown Point; Censors, L. G. Barton, Jr., R. T. Saville, J. H. Evans; Delegate to State Society, C. S. Faulkner, Elizabethtown; Alternate to State Society, G. E. Miller, Keene Valley.

Motion made and seconded that the Secretary be instructed to cast one ballot electing these men, officers for 1917. Carried.

The Committee on Resolutions reported the following resolutions which were unanimously adopted:

Whereas, Dr. Thomas A. Wasson has passed from our midst after a lifetime of conscientious devotion to the sick, and

Whereas, This Society has lost an honored member, be it

Resolved, That the Essex County Medical Society adopt these formal resolutions of regret at the death of Dr. Wasson and that a copy of these resolutions be inscribed on the minutes of the Society and published in the County papers.

Committee { C. R. Payne.
J. H. Evans.
L. G. Barton.

Treasurer's report was read and accepted.

A letter from Dr. Julius B. Ransome, President of the Fourth District Branch, was read.

Scientific Program.

President Turner asked that he be permitted to deliver his address at the next meeting.

Informal discussion of "Puerperal Eclampsia, with Presentation of a Case," by L. G. Barton, M.D., illustrating treatment by Cæsarian section.

"Role of Drugs in Treatment of Pneumonia," by Lyman G. Barton, M.D.

"Treatment of Pneumonia," by William T. Sherman, M.D.

"Diagnosis and Treatment of Pulmonary Tuberculosis," by T. J. Cummins, M.D.

MEDICAL SOCIETY OF THE COUNTY OF WARREN.

Annual Meeting, Glens Falls.

Wednesday, October 11, 1916.

Business Session.

The following officers were elected for the coming year: President, Ernest L. Wilson, Bolton Landing; Vice-President, Benjamin J. Singleton, Glens Falls; Secretary-Treasurer, Morris Maslon, Glens Falls; Delegate to State Society, Benjamin J. Singleton; Alternate to State Society, Virgil D. Sellick; Censors, Morrison L. Haviland, John J. Montgomery and Gedney A. Rowe.

A resolution was passed indorsing the Tuberculosis Hospital about to be voted on by the residents of Warren County.

After the business meeting the members and visitors were entertained by Dr. Morrison L. Haviland at a luncheon which was enjoyed by all. The Scientific Session consisted of the following papers:

"Prostate Gland," "Embryology," "Anatomy, Histology and Surgical Treatment," illustrated lantern slides, wax models, specimens, by Oswald S. Lowsley, Chief Genito-Urinary Clinic, Bellevue Hospital, New York City.

MEDICAL SOCIETY OF THE COUNTY OF GENESEE.

Annual Meeting, Batavia.

October 2, 1916.

The meeting was called to order by the President, Dr. Victor M. Rice. Reading of the minutes of the last meeting omitted.

The following members were elected: Drs. H. A. Harvey, Edith F. Ryan and J. D. Arnett.

Officers were elected for 1917 as follows: President, Charles D. Graney, Le Roy; Vice-President, Emery F. Will, Batavia; Secretary-Treasurer, Edith F. Ryan, Batavia; Delegates to State Society for two years, Edgar Bieber, Byron; Alternate, Roy C. Seamans, South Byron.

An interesting account was given by Dr. Meader of his investigation of an outbreak of typhoid fever in Batavia and Dr. Carr gave a demonstration of Widal test and method of immunization for typhoid.

MEDICAL SOCIETY OF THE COUNTY OF MONROE.

Regular Meeting, Rochester.
October 17, 1916.

Business Session.

The following members were elected: Drs. H. M. Burritt, J. P. Henry, David Wolin, Harold H. Baker, and Charles E. Rowe.

It was moved, seconded and carried that: Inasmuch as the defense of professional men from malpractice suits is a very highly specialized form of legal practice and at the present time our attorney, Mr. Lewis, is the only man who has had a training in this work and is the only man competent to carry it on;

Resolved, That the Medical Society of the County of Monroe feels that at least one more Attorney should be employed and trained by Mr. Lewis in this form of legal work, and, further, that sufficient funds should be provided to furnish additional office assistants in order that that office may be put on a plane commensurate with the size and dignity of our profession and the importance of the work to be done, and

Resolved, That we realize that the present revenues of the State Society are not sufficient to provide for these greatly needed reforms and we recommend that the annual dues of the members of the State Society be increased to $4 per year and that this extra amount be devoted to the purpose specified in the above resolution.

The speaker of the evening was Henry H. Hazen, M.D., of Washington, D. C., who gave an illustrated address on "Skin Cancers."

SCHUYLER COUNTY MEDICAL SOCIETY.

Regular Meeting, Watkins.
July 19, 1916.

The meeting was called to order by the President, Dr. M. L. Bennett, at the house of Dr. John Quirk.

Minutes of the previous meeting read and approved.

The Board of Censors reported favorably on the applications of Dr. Fergus A. Butler and Dr. Rolin Baker. The motion was seconded and carried and they were declared elected.

The following officers were elected for the ensuing year: President, Palmer Health Lyon, Valois; Vice-President, G. C. Fordham, Watkins; Secretary-Treasurer, N. Philip Norman, Watkins; Censors, George H. King, Arthur Jackson, Clarence W. Lieb.

After a most delicious luncheon, Dr. John M. Swan, of Rochester, read a paper entitled, "The Diagnosis and Treatment of Cardiac Diseases." Discussed by Drs. John Quirk, N. P. Norman, C. W. Lieb and P. H. Lyon.

A vote of thanks was tendered Dr. Swan for this most interesting talk.

A vote of thanks was also tendered to Dr. and Mrs. Quirk for their hospitality.

MEDICAL SOCIETY OF THE COUNTY OF LIVINGSTON.

Annual Meeting, Dansville.
Tuesday, October 3, 1916.

The Annual Meeting of the Medical Society of the County of Livingston was held at the Jackson Health Resort. The Society being the guests of the Resort, Dr. Hubert B. Marvin, of Lima, President, presiding.

The following officers were duly elected: President, William N. Trader, Jr., Sonyea; Vice-President, Francis V. Foster, Caledonia; Secretary-Treasurer, G. Kirby Collier, Sonyea; Delegate, Frederick R. Driesback; Censors, W. E. Lauderdale, F. R. Driesback, F. J. Bowen, J. P. Brown, F. A. Wicker.

The following resolution was presented and approved:

Resolved, It is the belief of this meeting that an increase of revenue for the State Society should be obtained in order that an additional attorney may be employed and the legal protection of our members be properly safeguarded; and it is the sense of this meeting that the dues of members of the State Society be increased $1 per year, if necessary, to provide such additional increase.

The Scientific Program was presented by members of the medical staff of the Jackson Health Resort, Charles H. Glidden, M.D., presenting a paper, "Rheumatism—Its Treatment"; and A. W. Holmes, M.D., a paper, "Arterio-Sclerosis." Discussed by L. H. Whitney, J. R. Williams, W. B. Jones and N. B. Sobel, of Rochester.

The next meeting of the Society will be held in Mount Morris on the first Tuesday in January, 1917.

MEDICAL SOCIETY OF THE COUNTY OF SARATOGA.

Annual Meeting, Mt. McGregor.
Thursday, October 19, 1916.

The meeting was held at the Metropolitan Sanatorium at Mt. McGregor.

The following officers were elected for the ensuing year: President, Horace J. Howk, M.D., Mt. McGregor; Vice-President, William Van Doren, M.D., Mechanicville; Treasurer, Thomas E. Bullard, M.D., Schuylerville; Secretary, James T. Sweetman, Jr., M.D., Ballston Spa; Censors, Francis J. Sherman, A. S. Downs, W. B. Webster; Delegate to State Society, G. S. Towne.

Following the business meeting a paper was read on "The Cerebro-Spinal Fluid" by Edward Livingston Hunt, M.D., New York City.

After the meeting a luncheon was served and the members visited the Sanatorium.

MEDICAL SOCIETY OF THE COUNTY OF ALLEGANY.

Annual Meeting, Belmont.
Thursday, October 12, 1916.

Business Session.

Dr. C. R. Bowen, of Almond, read the report of the Secretary and Treasurer, which was received by the Society.

Reports of the Committees on Public Health, Legislation and Membership were read and accepted by the Society.

The following officers were elected for 1917: President, G. Roos, Wellsville; Vice-President, F. E. Howard, Cuba; Secretary-Treasurer, C. R. Bowen, Almond; Censors, F. T. Munson, L. S. Benedict, F. E. Comstock, H. L. Hulett, W. J. Hardy.

On motion, duly seconded and carried, it was voted to withdraw from the Glen Iris meeting, as very little interest in it was shown by the members of the Society.

On motion, duly seconded and carried, the Committee on Legislation was directed to see the member of the Assembly and ask him to support the movement to have such part of the Medical Practice Act, allowing the "tenets of any church" to practice medicine, stricken from the law.

Scientific Session.

President's Address, Charles O'Donnell, M.D., Andover.

"Treatments of Defects from Poliomyelitis," Prescott LeBreton, M.D., Buffalo.

"Epidemiology of Poliomyelitis," Bertis R. Wakeman, M.D., Hornell.

"Welfare of the Branch Society." Albert T. Lytle, M.D., President Eighth District Branch, Buffalo.

DEATHS.

William D. Aldrich, M.D., Albany, died September 28, 1916.

Henry J. McKenna, M.D., Astoria, died October 17, 1916.

Nathaniel G. McMaster, M.D., New York City, died November 8, 1916.

Nathaniel Matson, M.D., Brooklyn, died October 15, 1916.

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ORIGINAL ARTICLES

THE INFLUENCE OF LUETIC INFECTION IN GYNECOLOGY AND OBSTETRICS.*

By J. WESLEY BOVÉE, M.D., F.A.C.S.,
WASHINGTON, D. C.

PREVIOUS to 1905 the diagnosis of luetic infection was based entirely upon the clinical evidence. Much of the literature on syphilography of the epoch ending that year must be revised and in many respects absolutely discredited. The discovery that year of the active organism of lues, the spirochaeta pallida (Schaudinn and Hoffman, Arbeiten aus dem Kaiserlichen Gesundheitsammlung, Berlin, 1905, XX, 527) gave a great impetus to diagnostic accuracy and, in 1907, another discovery, the Wassermann serodiagnostic reaction, having less accuracy, though more practical value than the determination as to the presence of spirochaetae, have made practically certain the diagnosis of this fearful disease. Adding them to the clinical history gives an invincible trio that affords a positive basis for study of syphilis. What wonder, then, that enthusiasm was quickened in searching for a reliable spirochaeticide. As arsenic had been found in the endometrium and menstrual blood it offered good prospects and was found to be very efficacious in the treatment of lues. The late Professor P. Erlich was the first to reach success in this effort. His announcement in 1909 that his "606" (Salvarsan) was practically a specific was received with great rejoicing. With the usual reservation that tempers investigation of all new agents by the medical profession this one was studied. While it unaided has not proven to be a specific, its immense value in the treatment of luetic infection is universally conceded. It may, therefore, be stated that these three discoveries during a period of four years of the first decade of the twentieth century has marked a distinct epoch in syphilography.

Thus far the presence of spirochaetae pallida in the tissues or uncontaminated discharges has been accepted as *prima facie* evidence of syphilis. Of course, failure to find them does not justify the conclusion that this disease is absent. The Wassermann reaction is regarded as not so positive as the discovery of spirochaetae. Keyes is quoted as not accepting a single finding of spirochaetae as more valuable than a single unsupported positive Wassermann reaction, apparently regarding neither as final. Captain E. B. Vedder, U.S.A., concluded the Wassermann was about 84 per cent specific, counting plus and double plus reactions, in cases of known lues. Some observers state tuberculosis and other diseases will give a positive Wassermann, but Walker and Haller found in ninety cases of outspoken pulmonary tuberculosis but three had positive Wassermanns. Both luetic and tubercular infection may be present. Vedder regards the double plus as a positive proof of lues. Quite likely Vedder's estimate of 84 per cent as the value of the Wassermann is unduly conservative. The technique of this reaction is a very important feature and it is probable that carelessness in it may furnish a much higher percentage than that of Vedder. An important question at this moment, not satisfactorily answered, is just how reliable is it in the large majority—those not giving a luetic history or symptomatology. Negative and denied syphilitic histories are notoriously unreliable and it is this class in which reliable tests are very desirable. McIlroy, Watson and McIlroy found of 100 gynecic clinic patients whose general conditions were markedly affected but six gave a history of or admitted having had lues, while forty-three gave positive Wassermann, nine were doubtful and forty-eight were negative. In other words the disease was found about eight times as frequent as the histories indicated. They state their clinic drew chiefly from the respectable working classes, all cases of obvious syphilis being excluded and sent elsewhere. Hubert found in 759 Wassermanns, that 52 per cent of the men and fully 75 per cent of the women gave a negative history of luetic infection. The routine application of this reaction to the patients in dispensaries and hospitals has furnished alarming statistics of prevalence of lues and particularly among those who deny having it or giving distinct symptoms of it. It will be difficult to determine the per cent of syphilis in a large population. The estimate of Morrow and Neisser (quoted by Chase) that more than 2 per cent of the population of the United States and more than 5 per cent of that of Germany are luetic, has been greatly increased since the use of the Wassermann reaction has come into general use. Pinkus claimed one man in every five in Germany has had syphilis. Vedder and Hough, state they have statistics that indicate about 20 per cent of the young men of the community, of the class that enlist in the army and navy, are infected with syphilis. They estimated that 30 per cent of the white male inmates of the Government Hospital for the Insane, at Washington, and about 24 per cent of the colored males are syphilitic. Ivey found among the negro insane of Alabama that 25 per cent of the males and 29 per cent of the females gave positive Wassermanns. Should Federal laws be created making such test obligatory I fear an appalling result would be found in this country. Fortunately for gynecology, and to a less extent for obstetrics, it is generally accepted that lues is much less common among women than men. Pusey, of Chicago, in 1915, thought that it is probably two or three times as frequent among men as women. The Royal Swedish Commission, in 1914, found in Sweden 1,426 men and 688 women syphilitic. But Hubert found in 8,652 clinic patients 8.5 per cent among men and 9 per cent among women. In the gynecological and obstetrical clinics with which I am connected I have collected the report of 619 routine Wassermann reactions that of double plus 23 per cent, and single plus 15 failures not done again, 301. The percentages of double plus 23 per cent, and single plus 15 per cent give a total of probably 38 per cent of luetic infection. While I have not worked out the race proportions I believe about 60 per cent were white women.

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* Read at the Annual Meeting of the Medical Society of the State of New York at Saratoga Springs, May 16, 1916.

Lues in Gynecology.

There is, however, little comfort in quibbling over the question of sex frequency since we already realize that the frequency in the female is so great that it must greatly concern the gynecologist and obstetrician. I will not here discuss the difficulties from anatomical differences that interfere with the discovery of the primary luetic lesion in woman so easily as in the male. It should not seem remarkable that a woman might have a primary lesion without symptoms sufficiently marked to suggest to her the advisability of securing treatment. In such case secondary or tertiary manifestations may be absent for an indefinite period of time. Again the initial lesion may be in a location so obscure as to resist detection. Moreover the primary lesion clears up more rapidly in women than in men and never presents the usual induration of men except when located on the cutaneous vulvar surfaces. When the genital mucosa is the primary site the local evidence of infection is small in area (parchment-like induration) comparatively slight, evanescent and leaves but a very faint, if any, trace. Cervical chancre so closely resembles the erosions and infiltration that commonly are found in endometritis complicating induration and laceration of the cervix that one in the past would hardly suspect the true nature of the lesion. Indeed, both may be present. When more exaggerated its resemblance to cancer of the cervix is so great that diagnostic error has been many times made. In a woman twenty-four years of age with cervical excavation and remarkable fixation of the cervix by infiltration of the surrounding structures and suffering from very severe, constant and localized pain, a diagnosis of cancer was made by her physician and she was sent at once to my service in Columbia Hospital for Women. The local condition I considered luetic and anti-luetic treatment rapidly dissipated the pain and infiltration. To join her paramour she declared herself well and left the hospital. While the condition if cancerous precluded surgical operation and while it was diagnosed at once as luetic before the blood was secured for the double plus Wassermann, yet I was impressed by the reported diagnosis of cancer and by the very strong resemblance the condition bore to very late cervical cancer. Certainly my diagnosis of lues was not made from local appearances alone.

Inasmuch as a luetic cervical lesion most commonly resembles cancer and as many cases of luetic cervices have been "cured" as cancer, and the reverse, a few words here on differential diagnosis may be profitable. Cancer is most apt to be situated at or within the external os while a luetic ulcer or gumma may be separated from it by mucosa apparently normal. When the ulcer is just inside the cervical canal or when it has a cauliflower appearance or creates a malodorous discharge it will be difficult to distinguish between the two diseases though youth, history, etc. may more strongly indicate one or the other.

Cancer is usually more productive of bleeding, though notable exceptions are recorded. The microscope should find spirochaetae pallida and the Wassermann positive in lues. Should tissue be examined microscopically the diagnosis would be also certain.

After the disappearance of even such severe local luetic lesions in women the traces left are extremely slight. If the woman has given birth by the vaginal route to a child, one is very apt to mistake for traces of puerperal traumatism such luetic markings.

Palmer has examined 600 syphilitic women, in most of whom the time of primary infection was known, and found that visible signs were insignificant irrespective of whether or not the patients had received treatment. On an average, the scar of the primary lesion was recognizable for six months in the form of a purplish, or brownish discoloration, if located on the epidermis of the external genitals, while on the mucous membranes it had completely disappeared in less time. He found that even deep ulcerative syphilides of the cervix leave, as a rule, no scars as typical as those of syphilitic ulcerations in other mucous membranes.

Since the local manifestations of luetic invasion of the female genital tract are commonly so small and evanescent, disappearing with practically no trace left, and since Ulenhuth and Mulzer in 1912, and Finger in 1914, have proven the sperma constitute a very capable carrier of the infection, we must expect the primary lesion to be at any point of the genital mucosa or on the skin about the vulva and to commonly escape detection. It must not be forgotten, however, that syphilitic infection of the vagina in the primary or secondary stages is almost unknown, and when present in the tertiary are usually produced by contamination from the vulva or cervix. Neumann found in 757 women with chancres, 115 (15 per cent) had them on the portio, sixty-two being on both lips, thirty-two on the anterior lip and twenty-one on the posterior lip. While cervical chancre is the most common form of female genital primary luetic lesion it has not been usually recognized. More careful observation would probably have prevented its being undiagnosed so frequently.

Tertiary lesions of the cervix in the form of gummata is not uncommon. Usually they necrose and form ulcers. In the uterine body primary and secondary lesions have not been observed but gummata have been found in it. It is, nevertheless, unreasonable to believe that spermatozoa do not frequently carry spirochaetae into the uterus and probably into the Fallopian tubes, even though arsenic is constantly in the adult endometrium, the ovaries and menstrual blood. Thus far spirochaetes have never been found in the Fallopian tubes of luetic women nor in adult human ovaries. Yet in a very large per cent of women suffering from menorrhagia, and especially metrorrhagia, the Wassermann reaction is positive.

At this juncture it may be of interest to consider the association of lues and its modern treatment by arsenic on the one hand and on the other its normal elimination by the genitalia of women. Gautier in 1900, discovered the thyroid contained arsenic which is eliminated by the menstrual flow. Hertoghe, in 1909, also found it in the thyroid and menstrual blood but that more is discharged at times in the premenstrual secretions of the uterus. Reis (Imchanitzky), in 1912, demonstrated that arsenic was stored up physiologically in the endomentrium and discharged at menstruation, when the accumulation approached a toxic amount. Frommer confirmed these observations and found arsenic in the ovaries. Is there any relation between the relative infrequency of lues in the uterus and ovaries and the constant presence of arsenic there, is a question the solution of which may be of great value.

On the whole, researches in the past, into luetic invasions of the generative organs of women have been unfruitful. This seems quite remarkable, remembering that it is commonly by this route that spirochaetae are introduced into woman. It is highly probable that the support of the Wassermann and discovery of the presence of spirochaetae will encourage more careful work and secure better results.

LUES IN OBSTETRICS.

Luetic infection is of far greater importance in practice of obstetrics than in gyniatrics. The parents alone are not necessarily of greatest importance. The child, prenatal as well as post natal, demands consideration. Here may be advantageously introduced a fourth person of interest—the wet nurse. That Colles's law and also that of Profeta are reliable is now discredited. The former held that a non-luetic mother could with impunity breast nurse a luetic child and that the latter, the so-called healthy infant, could not acquire lues from its actively diseased mother. Colles, in 1837, insisted that healthy mothers ran no risk of luetic infection by breast nursing their babies while healthy wet nurses suckling those infants were nearly certain of thus acquiring the disease. The Wassermann reaction or the presence of spirochaetae pallida have been so overpowering that those so-called healthy mothers on the one hand and healthy offspring on the other are really not healthy but are syphilitic and even extended observation reveals the appearance of convincing clinical phenomena that are positive of lues, even without the application of the laboratory methods mentioned. We then find that careful study of this feature forces the conclusion that both mother and offspring are, if either is, syphilitic. While the father of a luetic foetus need not be luetic, he may be so and I believe the mother is practically always so infected. The infection in any one of the trio may be latent though responding positively to the Wassermann reaction or furnishing the pallida spirochaetae sooner or later.

Mode of Transmission Between Mother and Child.

It is highly probable, though I realize Pollitzer declares it impossible, that an ovum may be infected by luetic sperma. In such case the medicolegal importance might be recognized. If infection be thus conveyed we may well speculate as to whether the woman contracted the disease direct from the man or through the intermediary host—the foetus. It also seems quite reasonable to regard the mother of a luetic child as being also luetic. In very rare instances infant or mother or both may be infected during parturition. Such instances must be very rare, however. It is probable that, if the infection is introduced into the woman by the sperma and ovum, it reaches the mother's tissues through the medium of the placenta, and from the mother to the foetus it is in the reverse direction through that structure. Since spirochaetes have never been found in adult ovary or ovum, our modern knowledge will hardly admit that the ovum recently extruded from the ovary may bear evidence of syphilis. Particularly, does this statement hold since no adult ovarian pathology characteristic of or traceable to lues has ever been authentically observed, and the influence of syphilis upon the ovary has been regarded as purely functional. The earliest time lues may be found in the ovum will be an interesting point to determine. The most commonly infected part of the foetus is the placenta, umbilical cord, the liver and the spleen. All these parts are directly connected with the circulation of blood between foetus and mother. In the living foetus spirochaetes are found in the walls of the umbilical vein and in the connective tissues surrounding the vessels at the umbilicus. In healthy infants born of syphilitic mothers the spirochaetae may not be thus found, but usually symptoms are not long delayed. The luetic placenta is usually notably thickened. Queirel states the normal proportion of weight of the placenta and child of one to six in the luetic specimen more apt to be one to four. Endarteritis is principally the luetic change noted. O. Thomsen lays great stress upon the characteristic inflammation of the umbilical cord. Mohn states that cheesy albumenoid material in the placenta are not necessarily luetic. The presence of a gumma or overgrowth of connective tissue in and distension of the vessels of the villi; abundant leucocytes and obliteration of vessels are very suggestive of lues. This competent observer states that in the funis the conditions are more characteristic, being increase of connective tissue and inflammation with exudate in the umbilical vessels, especially the veins, and leucocytic infiltration. The leucocytic infiltration is in constant proportion to the degree of the infection. The spirochaetae while always fewer in the vein than in the arteries are most abundant where the greatest tissue change was noted. Mohn believes the membranes always show changes, most marked in the chorion. He never found the amnion involved if the chorion was not infected. Unless the mother was syphilitic he never found the membranes infected but if spirochaetes were found in the membranes infiltrated with leucocytes the presence of syphilis was very probable. He found the spirochaetae in the placenta in 70 per cent of the cases in which both parents were luetic.

Lues in the Pregnant Woman.

While the symptoms vary with the state of the infection as well as with the period of pregnancy at which lues was acquired, there are certain important effects of this disease upon the progress of pregnancy, of the puerperium and of lactation, in addition to the non-recognized latent lues of the mother. These vary from the various troublesome conditions of the cervix, vagina and vulva that cause uncomfortable discharges to the greater dangers incident to macerated foetus; cervical infiltrations causing dystocia and premature separation of the normally implanted placenta which carries a mortality of about 30 per cent.

Usually luetic infection occurring late in pregnancy gives a safer puerperium to the mother than if it has a few months or years more duration. We note the striking exception of the woman having the disease in a latent form for a few years during which she may avoid the evil effects of the active form.

Renal complications of pregnancy are apparently exaggerated by syphilis. The general condition of the puerperal woman may be so depreciated by lues as to make her an easy victim to intercurrent disease—such as tuberculosis. Puerperal infection is more liable to occur when luetic lesions about the birth canal are present during labor. This is really an alarming fact. Probably puerperal infection and premature separation of the normally implanted placenta furnish the most serious effects of syphilis in the puerperal woman. These two conditions carry adult mortality rates of about 43 and 30 per cent, respectively.

Luetic Infection of the Foetus.

Miller claims that most pregnancies in luetic women terminate in abortion during the first month, while other authors state foetal death does not occur so soon after conception under this influence. This is at best a very difficult matter to determine, if we consider the very great difficulty that has confronted Mall in his efforts to secure very young foetuses. All seem agreed that a very large per cent of luetic foetuses are prematurely expelled (a large proportion being dead) or at full term are macerated. Miller states that 22 per cent of all pregnancies end in abortion but that in luetic women 70 per cent of conceptions thus terminate, usually from placental changes.

Commiskey studied 1,822 mothers and 1,074 newborn infants. The women were studied also during pregnancy. Eighty per cent of them went to term (75 per cent untreated and 81 per cent treated) and 7 per cent of the untreated and 10 per cent of the treated had premature labor. Nineteen per cent of the treated and 13 per cent of the untreated had stillbirths. Treatment was given principally to the active cases. Comparing 145 women with positive Wassermanns with 200 negative ones showed practically no difference in the two classes except a greater percentage of stillbirths and higher infant mortality during the first ten days. Penard and Girauld state A. Fournier found in 239 cases of luetic pregnant women there was a foetal mortality of 176, or 73 per cent and that Charpentier found that 781 pregnancies in luetic women there were 302 abortions.

If luetic premature separation of the normally placed placenta is so fatal to the mother it collects heavier toll from the foetus, about 80 per cent. If the child be born alive it usually is feeble and dies in a short time, perhaps very suddenly. If appropriate treatment be promptly instituted it may be saved, but only after a prolonged danger period. If the disease is latent for a considerable period the clinical evidences will certainly appear.

The career of the syphilitic foetus then is a very precarious one. The matter of wet nurses deserves careful consideration. Much, however, that has appeared in the literature on the feature of a mother suckling her child when one or both are syphilitic should be revised. Much of it appeared before the common use of the diagnostic tests now available and the non-luetic mothers or infants are now found to have latent infection. Certainly wet nurses and infants should be protected by these tests against contamination.

TREATMENT.

No great amount of reflection is necessary to appreciate we have not given sufficient attention to either the study or the treatment of this element in gyniatrics. In fact it would seem that had we acted upon the principle that every patient was luetic and that she should receive antiluetic treatment a greater volume of benefit would have resulted from our work.

We must, then, consider the influence of luetic infection upon each and every female generative organ and in a broader sense upon woman's reproductive power and her progeny. The first would properly belong in gyniatrics while the obstetrician would have more concern regarding the influence on reproduction. In the light of the surprising prevalence of luetic infection, as evidenced by the routine Wassermann reactions obtained, may we not even regard syphilis as the principal etiological agent in many gynecological conditions that are associated with leucorrhoea and metrorrhagia. I am specially impressed in this matter from having performed a radical operation for cancer of the cervix about fifteen years ago, finding no cancer in the specimen, and a few weeks later being humiliated by the patient presenting unmistakable secondary lesions. This experience may have caused me to be radical on this subject. It does not appear proper to even overlook the plus-minus reactions as I believe they are strongly indicative of at least a syphilitic taint that warrants treatment with some degree of activity. Surely, in my work antiluetic treatment is forced from the hour I learn from the Wassermann that the patient is not free of suspicion. In all gynecological inflammatory processes Siredey has advised such treatment before resorting to operation if ordinary non-operative treatment has been unsuccessfully employed.

Certain it is that antiluetic treatment should greatly ameliorate symptoms in luetic gynecological patients and after the disappearance of our astonishment at the commonness of lues in gyniatrics, we should take comfort from the aid furnished us by the positive Wassermann and the employment of the indicated antiluetic agencies subsequently. In fact our duty to our gynecic patients can not be fully subserved without our giving real live attention to the discovery and treatment of lues as a complication or the sole condition of gynecological patients indicating treatment.

Routine Wassermann reactions should be made in all adult gynecic and obstetric patients. Even search for spirochaetae will be of great importance in many of them. In the newly born, search for them in the funis and placenta is highly important.

Once the diagnosis of lues is made, the proper treatment should be as vigorous as is compatible with safety. In view of the great prevalence of lues and its grave import it would seem wise to regard all patients as at least mildly luetic and apply antiluetic treatment. This may challenge the tact of the gynecologist or obstetrician, but the patients will be the beneficiaries.

Short of this activity on our part our patients are not receiving the full measure of treatment due them. When compulsory periodical diagnostic tests followed by appropriate treatment are practiced, we may hope for immeasurable benefit to our people and much less necessity for some of the grotesque eugenic laws that have failed or passed some of our state legislatures, considered by some as equally grotesque, the capacity of our insane asylums will probably not be so severely taxed as at present.

Tuberculosis is a very harmless disease compared with lues.

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Discussion.

DR. THOMAS J. WATKINS, Chicago: There is very little one can discuss in Dr. Bovee's paper, as it is so comprehensive and complete. The frequency of lesions of syphilis of the cervix as shown by him is interesting and very important. One certainly should emphasize the importance of using gloves for examination, especially in suspicious cases, and emphasizes the great importance of scrupulous care in the sterilization of instruments in office work. Judging from the outfits one sees in doctors' offices, it is highly probable that instruments are very frequently reused without perfect sterilization.

The results obtained in Wassermann examinations illustrate the great importance of the test, as shown in two recent papers. In one, in 4,000 routine examinations, over 50 per cent of the positive reactions occurred in cases where syphilis was not suspected. The other paper corroborated these findings. I am also impressed with the value of using mercury and iodides as a therapeutic test in some cases that give a Wassermann negative, as Wassermann negatives are common in latent syphilis. The following case, briefly given, illustrates this point:

The patient was extremely ill. An exploratory abdominal section was made and chronic pancreatitis was found. The Wassermann test was negative. Prompt recovery followed the use of mercury and the patient has remained well.

DR. GEORGE GRAY WARD, JR., New York City: It is a matter of interest I think that the syphilographers now tell us that Colles law, which we were formerly led to believe was practically proven, is not correct. At the meeting at Washington, of the American Gynecological Society last week, Dr. Williams cited a case which would almost seem to prove that we still have good reason to believe in it. He had a case in his service of a negro woman who had some eleven labors, if I remember correctly, all of which had been under his supervision or control. She had had repeated Wassermann's and they were always negative. The first five labors, if I remember correctly, were perfectly normal and all the children were healthy. The sixth labor was a twin labor and one of the children was markedly syphilitic and the other one was not. On inquiry it was found that this particular case was probably one of superfecundation. The subsequent labors that he also had under observance were all without any evidence of syphilis whatever, and the woman herself has never showed any evidence of syphilis. This case seems strong evidence that there is still something in Colles law.

CONTRIBUTIONS TO THE THERAPY OF BRONCHIAL ASTHMA.*

By WOLFF FREUDENTHAL, M.D.,

NEW YORK CITY.

ASTHMA is said to be a symptom and not a disease. Whether or not this is correct will become evident to every one who has endeavored to study the nature of asthma and has treated and followed up many patients for years. While it is true that the asthmatic attack is excited by affections of various parts of the organism, the innermost nature of the disease always remains the same, no matter what be the seat of its origin. There are always the same spasmodic attacks affecting the bronchi from which we have to rid the patient if we desire to afford relief or obtain a cure.

This point must not be lost sight of, or else one is involved in a maze of contradictory opinion. But though the chief manifestations are in the bronchi, we know that the disease does not always originate there, or, at least, primarily. It is claimed to be produced there by reflex action. Whether this is true or not, we will soon see. Permit me to divide the subject into the following subdivisions:

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* Read at the Annual Meeting of the Medical Society of the State of New York at Saratoga Springs, May 16, 1916.

1. Nasal asthma.
2. Pharyngeal asthma.
3. Bronchial asthma.

Besides, asthma may be produced by conditions outside of the respiratory tract, and consequently other subdivisions must be made, namely:

4. Gastric or gastro-intestinal asthma.
5. Cutaneous asthma.
6. Sexual asthma.
7. Purely neurasthenic asthma.

Let us discuss some of these different forms.

1. *Nasal Asthma.*—In a gathering like this, it is, perhaps, unnecessary to refer to the numerous discussions that for many years have engaged the attention of laryngologists, have appeared on the programs of every congress, and provoked violent controversies. I can speak partly from personal experience since some of the leaders on that subject were my teachers—namely, Voltolini, B. Fraenkel, and the dermato-laryngologist Hack, of Freiburg. When Voltolini reported the cure of two asthmatics by the removal of nasal polypi, he was not aware of the importance of that fact. B. Fraenkel and Haemisch described similar cases, but it was left to the epoch-making work of Hack to start the ball rolling. Hack was the first to direct the eyes of the profession and the public to the small niche in our medical science called laryngology, but it was also Hack who by his colossal enthusiasm initiated the over-zealous work in nasal surgery from which we are just now beginning to recover. It has been known for a long time that the erectile tissue of the turbinates has nothing to do with asthma, a point upon which, as you are aware, Hack's whole theory was based.

But what are the pathological conditions in the nose concerned in the causation of asthma? In regard to that question I have gained a firm conviction in the course of years, and have learned to act accordingly. Just as in pulmonary tuberculosis, so in asthma, the upper air passages must be free for respiratory purposes, and if they are not, they must be made free. Certain operations are not permissible in tuberculosis on account of the danger of severe hemorrhage. In asthma, such a fear need not be entertained as a rule; but right here we must be carfeul not to overdo things. At any rate, we are justified in demanding that every asthmatic patient should be examined as to his nasal condition. Any omission in this respect is a mistake. If nasal polypi are present, they should be removed radically. That this has to be done, regardless of whether it promises a cure, we are all agreed. Other gross pathological conditions, as marked deviations of the septum, pronounced exostoses, etc., have to be operated upon in view of the possibility of a beneficial influence on the asthma. But as regards slight deviations of the septum, slight hypertrophies of the turbinates that neither touch the septum nor hinder respiration—to remove these is, to say the least, an error.

On the other hand, there is an affection which has been noted too little in connection with asthma, and that is purulent ethmoiditis. Here we must proceed surgically, and in some instances will get good results.

Permit me to cite the following cases:

Mr. William U., age forty, butcher, was referred to me by a colleague from Maine, on account of severe asthma. He had been four weeks in a hospital in Boston and for several weeks in a large hospital in New York City, without ever having been examined as to the condition of his nose. Consequently, he returned to his home in Maine in a worse condition than when he left it, but was finally sent to me for treatment. On examination an ethmoiditis was found on the right side with marked formation of crusts. On the same side, in the post-nasal space, there was much tenacious secretion which produced cough and evidently also the severe asthmatic attacks from which the patient had been suffering for more than a year. After a careful and thorough operation, the patient was freed of his asthma within three weeks, and feels well at present—that is, ten months later.

Another patient who consulted me with exactly the same conditions, showed an improvement after an operation on the ethmoid cells, but he developed slight evening temperature and loss of appetite, in spite of the great improvement of the asthmatic conditions, and finally tubercle bacilli were found in the sputum. He is now in the South.

If now you ask me the perfectly justifiable question: What has been gained by these operations? I can say from a personal experience extending over many years that I have treated hundreds of such patients. By the removal of polypi, etc., many have been cured —this is, they were discharged as cured. Am I, however, warranted in asserting positively that all these patients have remained free from asthma afterwards? According to my experiences within the last few years I cannot do so, since it has recently happened that patients who were operated upon by me years ago have returned to me without nasal polypi but with severe asthma. It is not possible to state what percentage of the entire number they represent. On the other hand, there are undoubtedly many who have remained cured permanently.

2. *Pharyngeal Asthma.*—The pharynx is like the nose; it is especially the upper portion

which forms the locus minimæ resistentiæ not only for asthma but also for tuberculosis and many other diseases. Bruegelmann, whom I do not follow often, even considers the faucial tonsil as the real nervous center, and as one of the main asthmogenous points. He also believes that from this point a contraction of the trachea is produced—a symptom which I have never been able to observe. But I have repeatedly seen that by the treatment of pathological conditions in this region asthma may be cured—as, for example, the simple removal of adenoid vegetations. I am sure you have all had the same experience.

But there is another condition of importance in this connection, i. e., post-nasal catarrh, which will be discussed later on.

A *laryngeal* asthma has never been observed by the writer, in spite of the fact that just in this locality neoplasms and infiltrations, as in tuberculosis, frequently produce intense dysponæa. Nor is a form of asthma known to the writer, the origin of which could be traced solely to the trachea.

We now come to that large group of cases in which the real seat of the disease is found in the bronchi.

3. *Bronchial Asthma.*—Here, too, subdivisions are necessary. You will see a certain number of patients who intrabronchially and intratracheally show the characteristic symptoms mentioned in a former paper by the writer. The nose and pharynx are generally free. These are nothing but *rheumatic symptoms,* which yield to the proper treatment in most cases. Years ago, the writer described an affection which he called rhinitis rheumatica, which is an autogenous disease. Pharyngitis and laryngitis rheumatica have long been known; why then, should the bronchi be spared in this disease. Indeed, they are not, and every practitioner will be able to prove this, if he only bears in mind the connection between rheumatism and asthma.

Another much larger series of cases has nothing whatsoever to do with rheumatism. These nowadays come to the writer after they have been subjected to nasal treatment for years. What is their origin?

In considering this question, which I have put to myself year in and year out, I have finally come to a comparison of the condition with laryngismus stridulus in children. As you are no doubt aware, in infancy and childhood the upper air passages are very susceptible to certain irritations, while in grown persons this susceptibility disappears and is succeeded by one of different character in the lower air passages. Many years ago the spasmodic asthma of the adult was compared with the laryngismus of children, and finally I myself came to the same conclusion. As is well known, the laryngismus stridulus is produced by secretion running down from the nose and nasopharynx. This occurs during the night when the children are in deep sleep. To explain this phenomenon, it is not necessary to assume that the secretion must completely obstruct respiration; that seems to occur but seldom, if ever. Small masses of secretion touching the epiglottis or other structures at the entrance of the larynx should suffice to produce a spasm of the glottis. Such spasms occur from similar irritations in other parts of the infant's body (disturbance of the digestive tract, etc.). That a spasm of the glottis may be produced in the adult, we all know from the very rare cases in which a slight irritation of the epiglottis causes such a condition. Generally, however, the larynx of the adult is much more tolerant to insults, so that the phlegm running down may excite a cough, but very rarely gives rise to the condition known as laryngismus stridulus. Since, however, an abnormal secretion from the nose and its adnexa is much more frequent in adults than in infants, it is justifiable to ask: What becomes of it? Many persons consult a physician, complaining of a dripping into the throat as soon as they lie down. This is certainly not an hysterical symptom, but a fact. As soon as such individuals assume the prone position, the nasal secretions drop down into the pharynx, or even into the larynx, and waken them. In others it gets into the œsophagus and into the stomach. In a third class, however, it passes through the rima glottidis into the trachea, and from there into the lower portions of the air tract. That secretions, and even crusts, find their way from the nose into the trachea, has been noticed by every one who has seen a large number of patients, especially those suffering from rhinitis sicca with formation of crusts. This is an absolute fact.

If, then, these dry masses can gain access to the trachea, how much easier is it for fluid secretions to do so. Once there, there is nothing to prevent them from flowing by their own gravity into the deeper parts where, however, we have not as yet been able to follow their course.

How intense an irritant is necessary to produce a spasm of the bronchi and their ramifications, it is impossible to state. Perhaps the mechanism is analogous to that of the spasm of the glottis, so that an irritation from the trachea causes, reflexly, contractions of the bronchial muscles in the lower portions. On the other hand, there is a possibility that the irritant acts only in a cumulative way, i. e., larger quantities have to be collected before an attack is produced. This may occur in a single night; perhaps only after several nights. Once a condition of irritation is established, the visible pathological conditions must of necessity follow, and a vicious circle, together with a picture of chronic asthma, is presented. In such cases nothing is accomplished by treating peripheral areas. The physician must endeavor to restore the mucosa to its normal condition, that is, to treat it in the same way as we have treated the larynx for the past half century—by direct applications.

Having thus determined the etiology, at least from the writer's viewpoint, we now come to our main theme, namely, the therapy. How do we treat such cases?

Some of them are improved, even cured, by the simplest methods of treatment of a post-nasal catarrh. No one will be surprised at this, if he considers the etiology.

Based on my deductions as to the etiology, Iscowitz, of New York, has evolved a serum taken from the post-nasal space, and has injected it into the bronchi. He reports good results.[1] I have not tried this serum, as my experiments aim to solve the problem in a different manner. Nor have I utilized the anaphylactic studies inaugurated by our distinguished colleague, S. J. Meltzer, and elaborated in such excellent manner by Alexander C. Howe (see the latter's latest publication in *New York Medical Journal*, April 15, 1916, in which he expresses the belief that asthma is an anaphylactic and not a reflex condition).

As you know, some time ago laryngologists began to treat the bronchi directly by topical applications. The publications of Ephraim, of Breslau, were the first to attract the attention of the profession; then followed the noteworthy contributions of Novotny and Henry Horn, of San Francisco, as well as those of Keiper. Horn's article must be mentioned especially on account of his exact observations. While Ephraim achieved excellent results by the endo-bronchial applications of adrenalin alone, the writer and others have not been successful with this method. Although a number of cases have been cured, it was noticed soon that some patients in consequence of long-continued treatment with adrenalin showed symptoms of chronic intoxication with this substance. Such cases I see more and more. Several years ago I drew attention to the fact that acute adrenalin intoxication with lethal results does happen in nasal and pharyngeal surgery. I would again direct attention to these *chronic* intoxications, which, however, occur mostly from hypodermatic injections. Therefore, we must be on the lookout for them. Besides, as was soon noticed, adrenalin has no curative effect and its action is not energetic enough. A mucosa that remains permantly thickened, even during the intervals—a fact which I have observed frequently—has to be treated like other swollen mucous membranes, that is, by astringents, etc. Naturally, we have to proceed here with the greatest caution, for we cannot foretell when an adhesion of the opposing mucosæ in the smaller bronchi may be produced, or even a pneumonia. Thus, I have been in the habit of using sprays of chloride of zinc (one-half to 1 per cent solution), hamamelis, tannic acid, etc., to which solutions some oleum menthæ pip. was frequently added. All this was applied by means of Ephraim's flexible spray, as modified by the writer and described in *American Medicine*, March, 1915.

In the larger bronchi we may apply stronger solutions without danger, especially where there is a circumscribed area of "hypertrophied" (?) tissue. In such instances a topical application through the bronchoscope by means of a cotton-wound applicator is the best. In other cases, when cough sets in immediately after the injection of any fluid and continues incessantly until almost every particle of the drug is coughed up, *insufflations of various powders* seemed in some instances to be of value. We have not been in a position to determine the value of Yankauer's apparatus for the relief of such cases, since it is impossible to obtain it at the present war time.

In another class of patients the mucosa of the trachea and bronchi is evidently normal in the intervals, and to treat such a mucosa with astringents would not be rational. I therefore tried another measure to arrest the onset of irritability of the bronchi, and that is endo-bronchial application of the galvanic and faradic currents. I have described this method elsewhere (*Am. Med.*, March, 1915; *Archiv. f. Laryngol.*, Bd. 29, Hft. 3), and it remains only to add that both currents are excellent means by which to relieve the atony of the bronchi as well as the spasm of the bronchial muscles. In explanation of this it must be said: I believe that following each spasm of the bronchi an atony sets in which is just as harmful to the patient; for it prevents, firstly, the discharge of all the phlegm collected during an attack; and, secondly, the removal of all the secretions during an interval. By means of some modifications to Ephraim's endo-bronchial spray, these currents have been applied simultaneously with astringents and other medicated fluids. This has been done for several years without observation of any untoward effects.

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[1] It is with regret I have to state that he died since.

Three other forms in which asthma manifests itself may be mentioned here briefly.

Gastric asthma has been described as dyspeptic asthma by Max Einhorn, of New York; it has been discussed more thoroughly but more one-sidedly in a book by James Adams, of London, and in some interesting observations reported by Dr. K. T. Koessler, of Chicago.

In this connection, I would remind you of *cutaneous asthma,* which occurs quite often with urticaria, just as the latter is frequently the forerunner of gastric disorders.

Asthma resulting from sexual neuroses has been described by Alexander Peyer (*Berliner Klin.,* 1889), and is not quite so rare as is generally believed. It goes to show that asthma may originate from disorders in any part of the body in consequence of reflex irritation of the vagus or, as Peyer thinks, also of the sympathetic nerves, transferred to the nerve centers, provided, as the writer believes, that there are abnormalities in the respiratory passages. Peyer mentions as causes: masturbation, abusus sexualis, etc. It may be of interest to refer to a most peculiar case occurring in a woman.

Mrs. C., thirty-two years of age, married for the second time, no children, no abortion, no lues. For the past fifteen years she has suffered from attacks of asthma. At that time she was operated upon for nasal polypi, and felt better for a time. Then the nasal septum was operated on, and she again experienced temporary relief; then both middle turbinates were removed; then the uvula; then both antra were opened and curetted (all this by a non-laryngologist!): and now she is anxious to have both tonsils removed, which I do not feel inclined to do, as they are both normal.

She was treated in the usual manner, felt better, then worse again, and so her condition fluctuated without any marked permanent benefit. One day when asked why she had no children, she answered that her husband felt that at present he could not support them. The husband was sent for and was found to be sexually impotent. He was advised to see a specialist, as it is my belief that his wife's asthma is kept up by the nervous strain incident to such an infirmity. But nothing has been heard from either him or her since this advice was given.

The most perfect characteristics of this hydraheaded condition are seen, however, in the last class of cases of so-called:

Purely Nervous or Neurasthenic Asthma.—True it is that every one of us would become nervous if he were suffering for years from asthma; but how is the following to be explained?

A patient enters your office breathing with the greatest difficulty. You make any kind of an indifferent application to the nose, or, if you prefer, subcutaneously; and the patient leaves the room breathing quietly and normally. But even if something else be done, such as removal of nasal polypi when absolutely required, and quiet respiration immediately sets in, it is incredible that the nose and bronchi should have suddenly become normal; for of necessity the same condition of irritability would persist for a time. In adults, therefore, one is absolutely forced to add another factor, and that is the psychological one. It is utterly impossible to describe the manifold forms in which this may manifest itself. And here is shown, as nowhere else, that asthma is a hydraheaded condition which must be attacked from all sides. Very frequently it happens that two heads grow after one has been cut off. In my former reports, several very interesting cases were reported, and you will perhaps permit me to add two more.

Mr. H., a very prominent engineer, fifty-five years of age, had suffered from asthma for the last thirty-eight years—that is, since his seventeenth year. He was never entirely free from it. For some time past, he has had it every year when at Newport; and in the last four years, even when he approaches Newport. He shows evidence of his former nasal treatment in the form of a large perforation and complete atrophy of the entire nasal mucosa.

Second case. Dr. S., a colleague, twenty-seven years of age, for the last few years has had severe attacks of dyspnœa which assume the character of a violent asthma. The pharynx and larynx, as he describes it, are contracted, and this sometimes extends to the left bronchus. He is dreadfully afraid of these attacks, which can only be relieved by adrenalin. They are provoked by certain unpleasant odors, especially by the odor connected with confinements. For that reason he no longer takes obstetric cases. The purulent odor of an abscess does not disturb him in the least. On examination, a very marked pharyngitis, a less pronounced laryngo-tracheitis, and a very marked irritation and swelling in the left main bronchus were found. You see, that the subjective localization in this case was correct. But when Dr. S. becomes asthmatic from certain odors, or the gentleman mentioned above gets the same attacks as soon as he comes near Newport, we are bound to think of some cerebral disturbance without which these cases cannot be explained.

In other instances the patient feels well under any kind of treatment until the time for its termination approaches. If you then tell him that in a day or two he will be discharged cured, he will return the next morning with as severe an attack of asthma as ever. These patients are not strong enough to be without the constant direction of a physician. There is something missing in their mental equilibrium, and until that is settled they cannot be pronounced cured.

Tuberculous Asthma.—Formerly the idea prevailed that asthma and tuberculosis could not occur in one and the same person. I accepted this theory until, early in my practice, I found that the contrary is true. While unable to describe a form of asthma that might properly be called tuberculous asthma, I would refer to a specimen in the collection at Montefiore Hospital from a person who died with the symptoms of asthma. In the post-mortem there were found peribronchial glandular swellings and also glands in the bronchi themselves; so that a condition was produced that simulated asthma.

I have tried to solve some of the problems of asthma by experiments in different classes of animals. The object was to determine, if possible, how animals tolerate the injection of fluids by the several methods mentioned above, and the effect of the faradic and galvanic currents when applied intrabronchially (caustic action, etc.). But the difficulties encountered and the new problems springing up during experimentation are so numerous that I am able today only to outline the beginning of our work. A priori, it may seem a useless waste of time to make topical applications deep into the bronchioles, since some men claim that they get just as far by making the injections through the larynx. This is not true, for two reasons: (1) It seems to be a fact established by experiments that when a catheter is introduced into the trachea, a constriction of the lower portion frequently—perhaps always—follows. (2) Kline and Winternitz have found that the catheter has to be inserted as deeply into the bronchi as possible and the fluid injected there, in order to produce lobar pneumonia. "If the culture is introduced into the upper air passages, with the catheter just beyond the larynx, the lungs are rarely affected. This suggests that there may be some protective mechanism in the upper respiratory tract whereby the organisms are prevented from reaching alveoli . . . " If we apply the term middle respiratory tract instead of upper respiratory tract, as used by the authors, we will readily understand the situation. We recognize the fact that the lower air tract is doubly protected by nature, and in order to overcome the natural barriers we have to carry our medication beyond these points into the deepest portions. An injection into or through the larynx will never pass beyond the middle air tract, as I take the liberty of calling that portion. But when we do penetrate deep down, another point comes up. Then infectious germs (from the mouth, etc.) are carried into the alveoli at the same time and the danger of pneumonia comes up at once. In the human being that has never occurred to my knowledge; but in animals pneumonia sets in only too frequently, in experiments of this kind. Thus consolidation occurred in every instance (big dogs) in the beginning of my experiments. It, however, was undoubtedly due to the large amount injected (10 c.c. at once). Besides, the concentration of the astringent may have had something to do with these results (chloride of zinc, 5 per cent, etc.). Later on we used weaker solutions and injected 5 c.c. at a time. But even then pneumonia was a frequent occurrence. Whether or not it was always a sterile pneumonia, could not be decided. Another point is this: The entire fluid was always injected at once. This seems to be a faulty procedure. I shall try hereafter to use the drop method, i. e., letting the fluid run down drop by drop.

Of the different drugs tested so far, I would mention tannic acid, chloride of zinc in a weak solution, hamamelis, and iodide of potassium. Isotonic solutions were prepared with several of the drugs used for the different animals by Dr. Kline, to whom I would extend my thanks for his aid in some of these investigations.

Discussion.

Dr. Percy Fridenberg, New York City: The Chair does not attempt to discuss the treatment as laid down by Dr. Freudenthal, but merely to call attention to one fact which appears in regard to the pathology. It must seem evident that the irritation by secretions alone getting into the bronchi by gravity or by other means or being introduced experimentally cannot in themselves explain asthma—clinical asthma. For we know that copious and very offensive secretions as in bronchiectasis or abscess of the lung, cavities, or septic bronchitis, do not produce necessarily, asthmatic attacks; while on the other hand very, very slight infections will. I remind you of such things as emanations from horses sweating—very, very characteristic attacks of asthma produced in drivers of trotting horses merely from the wind coming over the sweating horse's back and carrying small amounts of some infecting material into the respiratory tract; others are susceptible to emanations from cats, so that they will get acute attacks of asthma from entering the room in which a cat has bedded. Now, it is evident that the action of irritative secretions alone will not explain such widely varying conditions.

Dr. Freudenthal has mentioned one of the factors which must play a very important role, and that is the neuropathic element. That we must undoubtedly consider, as we consider hay fever to a certain extent a neurosis very much on the line of angioneurotic edema. But of course that has nothing to do with the fact that this treatment, that we call symptomatic treatment, may be a very practical and a very valuable aid to the practitioner.

Dr. Yankauer, New York City: I have not done very much in the treatment of asthma through the bronchi. I have been waiting to hear Dr. Freudenthal's results. There certainly is, as the Chairman has said, a large neurotic element in all of these cases. And Dr. Freudenthal's mention of the psychic factor reminds me of a patient whom I cured of a long-standing asthma by opening the ethmoid cells; this woman remained cured for about four months—until I sent her my bill, whereupon she promptly got an attack of asthma.

Dr. Freudenthal mentioned the use of bronchial irrigation for the removal of the thick secretion which is found in the bronchi in these cases. This device, which is a double canula through one lumen of which fluid is injected, while suction is carried on through the other. This was devised by me for the treatment of lung abscesses, and I have had considerable success in alleviating the symptoms, in diminishing the discharge, and removing the fetid odor in cases of lung abscess. I can assure Dr. Freudenthal that the device will remove the secretion, but I do not know how the asthmatic patient will tolerate the injection of considerable quantities of fluid.

In irrigating a bronchial cavity, I notice the following: When you aspirate the cavity and remove as much secretion as you can from the cavity, the details of the bronchial mucous membrane are still obscured. If then you irrigate the cavity with normal saline solution, you get out a considerable quantity of thick, tenacious mucous, mixed with your irrigating water. When you examine the bronchial mucous membrane afterwards you can note all the details in the membrance; each ring stands out clear and distinct and there is no question that this procedure removes the mucous. If the presence of thick, tenacious mucous is the cause of asthma in any individual case, I think that Dr. Freudenthal may get some results from the use of such irrigation.

Dr. Freudenthal: Let me say, that the class of cases mentioned by the Chairman is a very important one. I had the good or bad luck to have a number of physicians who were affected with asthma, and they were just as bad, or perhaps worse than any other class of patients.

One doctor, who is twenty-nine years of age, says he cannot stand the odor of a confinement. He can stand the foul odor of an abscess, but the odor connected with any confinement is too much for him—so he had to give up confinements.

In regard to Dr. Yankauer's apparatus I will say it is not my idea only to remove the phlegm; I believe I get out the greatest part of it by injecting adrenalin, and then letting the patient cough it up, because then the bronchi open by themselves. But my idea is to apply afterwards something medicinal that will have some effect.

CAUSATION AND TREATMENT OF IDIOPATHIC, OPERATIVE AND POST-OPERATIVE ANO-RECTAL HEMORRHAGE.*

By SAMUEL GOODWIN GANT, M.D., LL.D.,
NEW YORK CITY.

BLEEDING from the rectum may be slight, moderate or alarming, and evacuated blood may be *bright red, coffee grounds, or black* (melena) in color.

In some cases a large amount of blood is lost in a few minutes, while in others bleeding is slight, but frequent or continuous, and hours, days, or weeks elapse before alarming symptoms are produced.

Hemorrhage is a common manifestation of ano-rectal disease, and in the average case is harmless, further than it makes the patient nervous or slightly anaemic. In rare instances where as a result of ulcers, malignant or other lesions, or operations, large vessels are injured, bleeding is serious, and the patient becomes markedly exsanguinated; but fatal rectal hemorrhage is probably rare, since the writer never lost a patient from it.

Hemorrhage is designated as *external* (visible) when blood escapes from the rectum or perianal region, and *internal* (invisible) when concealed.

External bleeding frequently complicates operations for hemorrhoids, fissure, fistula, cryptitis, polyps, ulcers, hypertrophied papillae, and lesions of the anal canal.

Internal hemorrhage may be induced by lesions in the mucosa or be secondary to operations performed upon the *movable* (upper) *or fixed* (anal canal) rectum and is dangerous since it is not suspected, until the patient exhibits alarming symptoms.

Etiology.

Operative ano-rectal hemorrhage may be classified into viz.: (1) *primary*, (2) *recurrent*, (3) *secondary*, and (4) *late primary* hemorrhage occurs during or immediately following operation, is serious when a large vessel has been injured, but when due to capillary oozing it is difficult to control, but not dangerous.

Recurrent hemorrhage takes place from several to thirty-six hours, following operation, and is usually caused by the slipping or untying of a ligature, pulling apart of cauterized hemorrhoidal stump edges during vomiting, or straining or subsequent opening of a vessel injured during operation.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 17, 1916.

Secondary hemorrhage is usually venous, encountered from two to fourteen days after operation, and most often occurs between the fourth and fifth day from infection, sloughing tissue, breaking down of injured vessels, cutting out of ligatures around unoccluded vessels and pressure necrosis, induced by tight packing.

Late hemorrhage from ano-rectal wounds, may be encountered weeks, or months, following operation, caused by exercise, cauterization, traumatization, digital or proctoscopic examination, topical applications, divulsion of the rectum, careless probing, or evacuation of hard fecal masses.

Primary, recurrent, secondary and late hemorrhage may be slight, moderate or profuse, hinging upon the size and number of vessels involved.

Rectal hemorrhage may be caused by foreign bodies, injuries, ano-rectal disease, operations and post-operative treatment.

The author has treated several minor and three alarming hemorrhages, caused by passage through the colon, or evacuation of rough or pointed foreign bodies.

Injuries of the rectum and anus are common, and bleeding from them may be slight or profuse.

Local diseases: Fresh or clotted blood may appear in the stools from disease, in any segment of the gastro-intestinal tract, but lesions responsible for bleeding are located in the *rectum,* very much more frequently than higher up.

Named in the order of their importance, the following are the affections, most frequently responsible for slight, moderate, or profuse, ano-rectal hemorrhage, viz.:

1. Internal hemorrhoids.
2. Proctitis.
3. Fissure-in-ano.
4. Ulceration.
5. Constipation and fecal impaction.
6. Cancer.
7. Polyps.
8. Stricture.
9. Capillary varicosities.
10. Hemorrhagic proctitis.
11. Procidentia-recti.
12. Cryptitis.
13. Condylomata.
14. Fistula.
15. Villous tumors.
16. Diverticula.
17. Invagination of the sigmoid flexure into the rectum, and
18. Miscellaneous affections.

Internal hemorrhoids bleed slightly from *superficial* which involve *small,* and profusely from *deep* ulcers that injure *large* vessels. As a rule bleeding from piles is venous, occurs during and immediately following an evacuation, and may continue a moment or hours, and the amount of blood lost may vary from drops to a half pint or more. Generally hemorrhage is arrested by returning hemorrhoid above the sphincter, and the blood lost is unimportant, except in neglected cases where bleeding is permitted to continue daily for years, until the patient is anaemic or almost exsanguinated.

Proctitis is a frequent cause of hemorrhage, but the symptoms are never alarming, since bleeding is slight, and comes from erosions, and the only evidence of hemorrhage is streaks of blood upon the feces.

Fissure-in-ano is characterized by slight bleeding during defecation, blood streaked feces, bright red droplets upon the excrement, or as a smear upon the toilet paper.

Ulceration of the rectum and anal canal, at one time or another, cause bleeding that may be insignificant or alarming, depending upon the number and size of the veins, or arteries involved, or large or small ulcers. In such cases the lesions may be tubercular, syphilitic, entamebic, malignant, bacillary, balantidic chancroidal, or the remains of incompletely healed wounds.

Constipation and fecal impaction occasionally induce rectal hemorrhage, and bleeding comes from laceration in the rectal mucosa, made by hardened fecal tumors (scybala) or stercoral ulcers, resulting from pressure necrosis, caused by retained hard fecal masses.

Cancer of the rectum or anus may be accompanied by frequent, slight, or profuse hemorrhage, after the neoplasm degenerates, and crater like ulcers form.

Polyps that remain above the sphincter seldom bleed, but when they are large, fragile, or protrude, bleeding ensues, since their replacement causes erosions, ulcers or breaks off a segment of the growth.

Stricture is characterized by a discharge, composed of admixed blood, pus, and mucus; profuse hemorrhage, is rare, except when induced by hard evacuations, introduction of the finger, proctoscope, speculum, bougie, or dilator, or operations.

Capillary varicosities of the anal canal are rare, but bleed daily, during and following defecation.

These varicosities appear as diminutive, bluish granulation-like swellings, in the mucosa, that coalesce and form single or multiple varicose patches of considerable size. Capillary varicosities may be independent or associated with hemorrhoids, syphilis, tuberculosis, or arterio-sclerosis and require special treatment, otherwise daily bleeding continues indefinitely, after complicating affections have been cured.

Hemorrhagic proctitis, is characterized by a thickened liver colored mucosa, disfigured by numerous punctate ulcers, that bleed upon provocation.

This condition may be confined to the rectum, or involve the entire colon, in which fresh indicates the former, and clotted blood the latter.

Procidentia recti may be accomplished by slight or copious bleeding, during and following stool, where the gut frequently protrudes, and becomes ulcerated from rough handling, or infection.

Cryptitis is responsible for bleeding where the lining of crypts is ulcerated or an abscess or fistula finds an outlet through them.

Condylomata (lata or acuminata) in the anal canal, at the muco-cutaneous juncture or upon the peri-anal skin, occasionally form masses, that degenerate into superficial ulcers, or break off during defecation, may cause bleeding slightly.

Fistula never bleeds except when probed, or they are encroached upon by ulcers then hemorrhage is unimportant.

Villous tumors are rare, and invariably accompanied by slight or profuse bleeding.

Diverticula are occasionally encountered in the rectum, never bleed except the sac is ulcerated, a pointed foreign body lodges in it, or it is ruptured by pus gas, or fecal distention.

Chronic invagination of the sigmoid flexure into the rectum, with erosions of the mucosa, caused by the up and down sliding of the gut, through the narrow recto sigmoidal juncture, is occasionally complicated by

Miscellaneous diseases, viz.: arterio sclerosis, pellagra, colonic chromatosis, amaloid degeneration, locomotor ataxia, infectious diseases of children, and circulatory affections, are occasionally directly or indirectly responsible for intestinal and rectal bleeding.

Operative and post-operative causes of hemorrhage: The majority of profuse rectal hemorrhages are due to faulty operations, failure to arrest bleedings and bad post-operative treatment.

Below, the author has enumerated the most common causes of bleeding from these sources, viz.:

1. Ignorant and unnecessary cutting.
2. Failing to ligate or crush spurting vessels.
3. Bruising and tearing of the mucosa, or diseased tissue.
4. Omitting to ligature vessels securely.
5. Removing tissue close to ligatures which slip.
6. Using cutting edged needles for rectal work.
7. Carelessly divulsing an ulcerated or strictured rectum.
8. Employing general anaesthesia in ano-rectal operations, which cause vomiting and straining.
9. Omitting to pack the upper rectum when bleeding is from a high lesion or wound.
10. Failing to plug the rectum when vessels have been injured.
11. Attempting to control bleeding by suture instead of packing when the tissues are degenerated.
12. Pulling down high rectal structures for examination or operation.
13. Stabbing, instead of properly operating upon ano-rectal abscesses.
14. Probing of ulcers and fistula wounds during and subsequent to operation.
15. Pushing packing into the rectum with a probe, grooved director, or pointed instrument which slips through gauze and injures the bowel.
16. Careless introduction of large specula or the finger following rectal operations.
17. Dilating an ulcerated or strictured rectum.
18. Packing the movable instead of the fixed rectum to arrest bleeding, following operations for fissure, fistula, hemorrhoids and polyps.
19. Omitting to place a firm compress over the anus before the binder is adjusted.
20. Not seeing dressings are in place after the patient is in bed.
21. Failing to thoroughly cauterize hemorrhoidal stumps during clamp and cautery operations.
22. Sponging or manipulating hemorrhoidal stumps, subsequent to cauterization.
23. Irrigating the rectum, shortly following ano-rectal operations.
24. Careless cauterization of ulcers and wounds with acids, the Pacquelin or electric cautery.
25. Failure to quiet patients and support the anus with the hand during straining and vomiting.
26. Administering cathartics that cause frequent fluid evacuations and straining.
27. Prescribing opiates which favor the formation of hard feces that tear open wounds.
28. Early post-operative administration of enemata, and careless introduction of syringe nozzles.
29. Careless withdrawal of packing.
30. Having patients strain, while rectal wounds are being examined or treated.

Symptoms.—Fresh blood in the evacuation is an unmistakable sign of rectal hemorrhage. *Slight* bleeding makes the patient nervous, but does not produce symptoms except slight anemia, loss of weight, indigestion and emaciation.

Profuse hemorrhages cause alarming manifestations, unless immediately arrested.

External is quickly recognized, since the bandage, dressings, sheet and bed are saturated with red blood, but *internal bleeding* is not diagnosed, until the patient is in a dangerous condition.

Where hemorrhage is concealed, the *patient complains of an incessant desire to stool, colicky pains, and marked abdominal distention,* caused by the accumulation of blood clots and gas in the colon and sigmoid flexure, symptoms that continue until blood has been evacuated. In such cases the evacuations, composed of foul smelling gas, fresh and clotted blood afford but temporary relief, unless bleeding has been arrested, because the rectum quickly refills.

A constant desire to urinate with inability to stool, is a sign of serious rectal bleeding.

During alarming rectal hemorrhage the patient is anxious in a cold perspiration, has dilated pupils, is very pale, the pulse increases, as the beat loses force, or becomes imperceptible, and the patient usually faints or collapses. In concluding the symptomatology, the author wishes to emphasize, that an *incessant desire to stool, colicky pains, and marked lower abdominal distention,* are the cardinal signs of idiopathic and post-operative rectal hemorrhage.

Diagnosis.—The diagnosis of ano-rectal hemorrhage is usually easy, because blood is seen in the stools, or dribbling through the anus, but when bleeding is concealed, hemorrhage is not suspected until considerable blood is lost.

Occult blood is of no diagnostic importance in ano-rectal affections, because lesions in here are detected with the finger or proctoscope.

Fresh blood indicates recent bleeding from the lower rectum, while blood clots point to colonic or rectal hemorrhage, that occurred hours or days before.

Coffee-grounds stools complicate lesions of the stomach, small intestine or colon, and black fluid or semi-solid blood those of the sigmoid flexure.

The diagnostic symptoms of alarming *idiopathic* and *post-operative* rectal hemorrhage, are viz., *constant desire to stool, abdominal distention, diffuse, colicky pains, restlessness, fast, thready pulse, rapidly diminishing blood pressure, death-like pallor, syncopy, and shock.*

One can easily locate blood, but it is difficult to determine whether it is rectal or colonic, unless the lesion is located through the sigmoidoscope, or blood is seen as trickling through the recto-sigmoidal opening.

Treatment.—When the result of disease, bleeding may be confined to the rectum, or be associated with hemorrhage from lesions in the colon, or small intestine, and the involved segment of gut must be considered when planning treatment.

Idiopathic, operative and *post-operative,* rectal hemorrhage is controlled much easier than bleeding from the small or large intestine, because lesions here are seen and treated directly.

The treatment of gastric, small intestinal, and colonic hemorrhage, associated with rectal bleeding, briefly stated consists in, viz., keeping the patient in bed, withholding solid food, prescribing morphia, gr. ¼ (6.016) to relieve pain, and quiet peristalsis, administering laxative to insure soft stools prescribing calcium chloride, grs. 15 (1.0) four times daily in conjunction with gelatin (10% solution) viii (500 cc) or bismuth grs. XV, every four hours and employing horse serum for exsanguination. Styptics are unreliable, and heart stimulants, saline, hypodermoclysis and infusion are seldom employed, because they increase blood pressure, which may dislodge occluding clots.

Hemorrhage resulting from recurative coloproctitis, is controlled by irrigants introduced though the *anus, or on appendicostomy, or cecostomy opening.*

The author has found boric acid, 4 per cent, ichthyol, 3 to 5 per cent, balsam of Peru, 4 per cent and potassium permanganate, 2 per cent, very effective.

When there is extensive ulceration, diarrhea is annoying, and bleeding is alarming, daily flushing with one of the above irrigants, or a high enema of warm water containing silver nitrate grs. 15 (1.0) followed by a saline injection, promptly relieves the patient.

Lesions in the rectum, and lower sigmoid flexure that bleed, are healed more quickly by reinforcing irrigation with topical applications of ichthyol, silver nitrate, balsam of Peru, 8 per cent, or argyrol, 20 per cent, and when sluggish by touching them with an electric or Paquelin cautery, but more satisfactory results are obtained by saturating gauze in the solution, and leaving it *in situ,* since the medication is kept constantly in contact with them.

To control active bleeding, gauze or cotton, dusted or saturated with iron perchloride, alum, tannic acid, adrenalin, or a solution of iron is introduced, and left until bleeding ceases.

Styptics occasionally control oozing, but are not relied upon to arrest profuse bleeding.

The plans outlined are effective, where bleeding is slight, but more certain methods are necessary to control dangerous idiopathic and post-operative hemorrhage.

Surgeons are frequently called to arrest bleeding when there is none, where bloody water has been left in the bowel to ooze out, but such mistakes are obviated by drying the rectum before dressings are applied.

Before attempting to control hemorrhage, the rectum is irrigated free of blood to locate bleeding points and prevent blood from escaping after the rectum is packed, which causes the nurses to believe there is second hemorrhage.

Many plans have been devised for controlling profuse rectal bleeding, of which the following are the most dependable, viz.:

1. Placing a Gant pyramidal compress over the anus.
2. Ligation of bleeding vessels.
3. Packing the wound, anal canal or rectum.
4. Suturing bleeding areas.
5. Clamping tissues or vessels with pressure forceps.
6. Distending the rectum with a rubber or cloth inflatable bag.
7. Cauterization of raw surfaces.
8. Introducing a tube wrapped in stypticised gauze.
9. Torsion of veins and arteries.
10. Miscellaneous methods.

Placing a Gant pyramidal compress over the anus.—The loss of a slight or considerable amount of blood is often traceable to a mucocutaneous cut or profusion of hemorrhoidal or other stumps or lesions during straining, subsequent to etherization.

Hemorrhage from these sources is easily prevented, or arrested by placing the writer's pyramidal compress over the anus and firmly supporting it with a well-adjusted T binder. The compress controls bleeding by direct pressure upon external wounds, and forestalling bleeding from the rectum.

Ligation of bleeding vessels.—Spurting vessels are easily ligated when low, but are difficult or impossible to tie when in the upper rectum. No attempt should be made to control bleeding from a vein or artery, when the mucus membrane, or deeper structures are diseased and fragile, because the ligature cuts out, and aggravates bleeding.

In some instances where blood comes from large, raw surfaces, bleeding is quickly controlled, by lifting the tissues with heavy T forceps, and ligating them *en masse.*

In the majority of cases, the author prefers packing to ligating, because it is reliable, and avoids traumatization of tissues, caused by forceps and ligatures.

Packing the wound, anal canal or rectum.—Pressure can always be relied upon to control oozing and bleeding from large or small vessels, when rightly applied.

Copious bleeding from the anal canal, is quickly stopped by introducing a compact gauze plug through the proctoscope, and leaving it to project through the anus, but this procedure is not safe, when there are spurting vessels.

When hemorrhage is from the lower rectum, as in 80 per cent of the cases, it is quickly controlled by packing with gauze strips, introduced layer by layer, until the anal canal is completely distended, the end of each strip being left projecting from the anus so that the packing can be easily removed.

A satisfactory plan for packing all segments of the rectum, is to ligate an 18-inch gauze napkin around a bougie, introduce it into the bowel, and pack the space about the bougie, until the gut is distended, and bleeding arrested. An advantage of this procedure is, that gas and retained blood can escape at all times. Equally good results are obtained by pushing the napkin through a proctoscope and filling it with gauze bandages, carried upward, with the author's packer. Where blood escapes from a number of points in the rectum or lower sigmoid flexure, the author has often arrested bleeding by introducing a strong, short or long sausage-shaped sack, through a sigmoidoscope, and tightly packing it with gauze in and outside the bowel, following which the projecting end is ligated.

The surest method of controlling hemorrhage, is to introduce a sponge as high as required, to which is attached two strong hemp strings, the rectum and anal canal below are then firmly packed with bandages, by the layer method, after which a Gant pyramidal compress is placed over the anus, and the ligatures are tightly tied across it.

This procedure stops bleeding, because the lesion or wound is constantly in contact with the gauze, compressed between the sponge above and the pressure pad below.

Suturing bleeding areas.—Bleeding from lengthy lesions or wounds and injured vessels beneath the mucosa, is sometimes arrested by a deep running suture, but the method is questionable, when the mucosa is fragile, or tissues are diseased, because the sutures tear through and augment bleeding, or the needle injures another vessel. Chronic catgut and round needles are employed in this work.

Clamping tissues or vessels with pressure forceps.—Alarming hemorrhage from large, spurting vessels, and extensive oozing areas, in the middle and lower rectum is quickly controlled, by clamping them with pressure forceps. The artery or tissue seized is then ligated behind them, but when this is not feasible, the forceps are left *in situ,* and the handles detatched to minimize subsequent discomfort.

Distending the rectum with a rubber or cloth inflatable bag.—On several occasions, the writer succeeded in promptly arresting copious hemorrhage, by introducing his rubber inflatable bag, and distending the bleeding segment of the rectum. Since the bag has a long tube attachment, it can be used to control bleeding in the sigmoid flexure.

Cauterization of raw surfaces.—Slight and copious hemorrhages from wounds or lesions incident to oozing is sometimes arrested by cauterizing them with an electric or paquelin cautery, but the procedure is not employed to control bleeding from spurting vessels.

Introduction of a tube wrapped in stypticised gauze.—Capillary hemorrhage is often stopped, by introducing a large rubber tube wrapped with gauze containing iron, adrenalin or other styptic.

Torsion of veins and arteries.—Some surgeons seize and twist vessels with forceps to prevent or arrest bleeding; a pernicious habit that encourages alarming hemorrhage, because pieces of mucus membrane, are often torn off and new vessels are injured.

Miscellaneous methods.—In hemorrhagic colitis, disseminated rectal varicositic and pin-point ulceration, where bleeding is from many points in the sigmoid and rectum, it can be controlled and lesions causing it healed, by filling the bowel with medicated or stypticised packing, introduced through a protoscope carrier.

Ice bags over the abdomen and sacrum are often used, but the writer has never succeeded in diminishing or arresting copious rectal bleeding with them.

Some surgeons rely upon elevating the foot of the bed, but the procedure does not minimize bleeding from spurting vessels.

Treatment following hemorrhage.—Immediately hemorrhage is controlled, the patient is placed in bed, surrounded by hot water bottles, and given fluid nourishment in liberal amounts. When there is no danger of further bleeding, digitalis or strychnia is administered, and liberal quantity of physiologic salt solution is injected through a vein, or beneath the skin when needed, but these agents are contra-indicated until bleeding vessels are permanently blocked, because they tend to dislodge, partly or formed clots, by increasing blood pressure.

Discussion.

Dr. Descum C. McKenney, Buffalo: Dr. Gant's subject is one that should interest professionally everyone present, and, I believe I can safely say, many of you personally.

He has considered the question of intestinal hemorrhage from many viewpoints, reviewing the great variety of causes, diagnosis and treatment, in a most thorough manner, so that it leaves one, who attempts to discuss his paper, very little to say. Much good will be accomplished, if his paper does nothing more than to emphasize the following facts: that intestinal hemorrhage is always pathologic; that the pathology is most frequently located in the lower portion of the large bowel, and that diagnosis by palpation and direct inspection with the sigmoidoscope can be easily made in this part of the intestinal tract.

The mere statement of the patient, when he has bleeding, that he has piles, should in no way influence the physician in instituting treatment without making thorough examination, for only too often benign and malignant conditions coexist. A routine examination will often reveal pathology of great value to the diagnostician, besides, one is the more able to diagnose pathology, if he has familiarized himself with the appearance of the normal bowel.

The value of the X-ray in locating the source of the hemorrhage should not be forgotten.

Proctitis and ulceration are easy to diagnose, but the cause of these conditions, in many instances, are not. One that Dr. Gant did not mention (if I am not mistaken) is gonorrhea. Three cases have recently come to my notice. All were females, aged 22. Two complained of blood in the stools; and, in the third case, microscopic examination revealed blood.

The symptoms of burning, knife-like pains in the rectum with increased frequency of bowel movements and a history of genital gonorrhea should make one suspicious of such rectal infection. Gonorrheal inflammation almost never extends upward in the rectum more than three or four inches, and there is the typical purulent discharge in which gonococci can be easily demonstrated.

Dr. Gant has stated clearly the symptoms of bleeding into the rectum, and nurses should be taught to observe these danger signals in post-operative cases.

Idiopathic hemorrhage is always lessened by cleaning the bowel of all irritants, which Dr. Gant recommends. Liquid petrolatum does much toward lessening future irritation and in that way helps to reduce hemorrhage.

Diverting the fecal current through a colostomy opening is a valuable procedure for stopping hemorrhage as well as relieving many of the unpleasant symptoms associated with inoperable carcinoma. Thus feces that pass over and injure the cancer are side-tracked, and one is the better able to combat by irrigations, etc., the associated inflammation of the surrounding tissues and so reduce the size of the tumor temporarily. The patient's hemorrhage usually ceases; his life is prolonged and made so much more comfortable that this help, the speaker thinks, should always be given the patient.

Appendecostomy and caecostomy should be considered in all cases of proctitis and colitis, and especially valuable is this procedure when combined with emetine in the treatment of amoebic dysentery.

After operations about the rectum and anal canal, if a small quantity of one-fourth to one-half per cent of urea and quinine is injected in the edge of all cut tissues it not only makes the patient very comfortable for three or four days, but makes it possible to search for the source of hemorrhage, should the occasion arise, without anaesthetic and without hurting the patient. Urea and quinine used in this way has apparently never been the cause of delay in healing.

A safety-first dressing that can be used after every rectal operation, is made of a strip of four-ply gauze, three feet long and one inch wide, with a double heavy silk or linen ligature tied at one end of the gauze and sewed back and forth at intervals of two inches through the center of the gauze. This is dipped in hot sterile vaseline and allowed to cool. After operation six inches to two feet of it (depending upon the danger of hemorrhage) is packed into the rectum and the remainder is packed over the anus. Should hemorrhage occur the ligature is tugged upon and the gauze folds up as a pad internal to the sphincter, and another gauze pad can be fastened external to the ligature by tying it to the ligature. In this way the bleeding point is held firmly between two pads in very much the same way as advocated by Dr. Gant. Should bleeding not occur, the gauze can be taken out next morning, or sooner if the patient is uncomfortable. In its removal, if done slowly no pain is produced because of the vaseline and the urea and quinine, which relaxes the sphincter, and thus there is no possibility of starting an hemorrhage.

For after treatment, absorbent cotton makes a much better dressing for rectal operation than gauze. The latter when withdrawn, destroys all granulation tissue; the former does not.

THE REMOVAL OF THE TONSIL AS A PROPHYLACTIC MEASURE.*

By HENRY HALL FORBES, M.D.,
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THE subject of the tonsil and its removal as an advance in prophylactic medicine must of necessity be of interest and importance to the specialist, the family physician, the parents and the general public. The tonsil question has aroused the mind of the thinking parents to the benefits resulting from our work in childhood, and also the results accruing to the adult himself, so that now, we often find the parents bringing the child to us to have his tonsils removed, and the adult seeking advice regarding the tonsil as a possible cause of his general condition. The apology for taking up this subject again has come from a seemingly growing conservatism among some of my confreres to question what they term the present radical work which is being done. Sober judgment in tonsil operative work must ever be in mind, and perhaps some of the work may have been open to criticism. It is my desire that these remarks may, in the discussion, enable us to come to some definite conclusions and that it is desirous to determine how far we are entitled to go in our advice to the general practitioner, who comes to us with both adult and child.

To me it seems that we are reaching a point both surgically and pathologically where we can conscientiously advise the removal of many more tonsils in many more cases. Certainly no one will question the advance we have made in our technique, as developed by the laryngologist, who has used every effort to perfect the operation and protect the safety of the patient. In order to overcome any criticism, it must of necessity be assumed, in our discussion, that the operator has the necessary skill and training; that a "Standard Tonsillectomy" is the operation. Dr. John Rice Fletcher, Chicago: and that it is a hospital operation.

At the start it would seem wise to determine the present attitude of some of the physiologists and pediatricists regarding the physiological function of the tonsil, and with this in mind, I sent out a number of queries requesting answers to this question, as well as to some others.

The questions sent and answers received by me are as follows:

1. Have the tonsils a physiological function? Answers, 14. 6, No. 5, Yes. 1, Yes, when normal. Question, 2.

2. If so, does it cease at any definite age? 7, No. 3, Yes at puberty. Question, 2.

3. Have you noted any bad effects in the development of the child following tonsillectomy? 8, No.

4. Does presence of tonsils increase liability to contagious diseases? 2, No. 3, Yes. 2, Yes when diseased.

5. Are complications more frequent in contagious diseases where the tonsils have not been removed? 6, Yes. Question, 2.

6. Have you noted cases of rheumatism and cardiac disease in children following tonsillectomy? 8, No. Question, 1.

7. Do you consider presence of tonsils adds to gravity of other diseases than the above? 2, No, if normal. 7, Yes. Question, 1.

8. Would you consider the removal of the tonsils in doubtful cases a wise measure, from the standpoint of prophylaxis, and an advance in preventive medicine? 1, No. 13, Yes. Question, 2.

Questions Sent to Health Officers.

1. Relative frequency of presence of tonsils in cases of contagious diseases admitted to your hospitals:

Willard Parker, 90 per cent. Kingston Avenue, 98 to 100 per cent. Riverside, 80 per cent. Philadelphia, 86 per cent diphtheria; 41 per cent scarlet fever. Baltimore, majority. Exceptional not to be found.

2. Relative frequency of complications in contagious diseases with and without the tonsils:

Willard Parker, practically all cases had abnormal tonsils in Willard Parker, impossible to compare. Kingston Avenue Hospital, 5 cases of diphtheria having had tonsillectomy, were mild and had no complications. Riverside, in 51 abnormal tonsils; 9 ototis media; 2 endocarditis; 3 bradycardia; 2 acute cardio-renal; 2 endocarditis. Philadelphia, No complications in 14 cases of diphtheria with no tonsil disease. Baltimore, more frequent.

Chief of bureau of communicable diseases, Cleveland, said: "Contagion of rheumatism usually enters by way of tonsil. I see in the removal of tonsils a great prophylactic method with a tendency to diminish communicable disease."

I wish to thank Dr. Haven Emerson, Health Commissioner of New York, for his courtesy for having compiled most thoroughly the previously quoted facts and figures, and also to add the following figures as showing the work which is being done by the Health Department to improve the health of the school children. The heads of the departments in the schools are most enthusiastic as regards results.

Operations on school children: 1913, 15,242; 1914, 18,570; 1915, 15,709, in 9 months.

1. All operations under general anæsthesia.

2. All children kept in hospital from 18 to 24 hours.

The work is done by a special corps of surgeons, and every effort is made to guard the safety of the patient.

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* Read at the Annual Meeting of the Medical Society of the State of New York at Saratoga Springs, May 18, 1916.

* In a personal letter from one of my pediatric friends he very frankly states that it has never been demonstrated, to his satisfaction, that the tonsil possesses a physiological function, and that the presence of adenoids and tonsils adds to the gravity of any other disease a child may have.

Assuming the tonsil to be healthy, we know it to be the portal[9] of entrance to infection: Diphtheria, scarlet fever, acute articular rheumatism, general sepsis, cerebro-spinal-meningitis, acute anterior poliomyelitis, endocarditis, orchitis, tuberculosis, all may have point of infection in the tonsil. Again when we realize that an apparent harmless attack of tonsilitis may form the starting point of an acute or sub-acute nephritis, do we realize the prophylactic use of tonsillectomies.

Tenzer[7] tells us that the faucal tonsil may be unhesitatingly sacrificed when necessary. Extensive investigation among children failed to discover disadvantages of any kind whatever, as sequelæ to the operation.

Tassler[8] tells us there are no contra-indications, either on practical or theoretical grounds, and no danger is involved either in the immediate results of the operation, or in the remote effects of our tonsillectomies.

Rush[1] recommends tonsillectomy as a means of a quicker release from the quarantine of diphtheria carriers, and to the public a greater assurance that the patient is no longer dangerous than any other treatment. Contagious Division, Cleveland City Hospital.

[2] "The relation of the tonsil to the dissemination of septic infection has been increasingly recognized during the past decade." Few clinicians at this time deny that infected tonsils are a source of rheumatic fever and of many of the so-called complications which are really only non-arthritic localizations such as endocarditis, myocarditis, pericarditis, pleurisy, chorea, and myositis.

[2] Page 488—Experience has shown that it is entirely possible for tonsilla infection to exist deep in the tissues and give only the most indefinite symptoms and signs even with careful study.

[2] Page 489—In the case of the tonsil, the clinical evidence of infection may be difficult to secure. One who has systematically attempted to eradicate focal infections will be often called upon to insist upon the removal of a fairly innocent-looking pair of tonsils even in the face of statements by competent nose and throat surgeons that the tonsils do not appear diseased. We frequently see infection arising from tonsils which are small, buried and adherent to the pillars and that show no external signs of inflammation, except possibly a streak of reddening along the pillar. Such tonsils are as frequently the source of systemic dissemination as the frankly and evidently inflamed ones. Where such tonsils exist and where there is no clear evidence of some other focal infection, the need for tonsillectomy rests more upon whether there is evidence of systemic infection from some focus, than upon the apparent condition of the tonsil itself. As a result of this attitude, we have been frequently rewarded by having the pathologist, after removal of the tonsils, find definite evidences of infection when clinical evidences of active inflammation were lacking.

Dr. French[4] attempts to differentiate health and diseased tonsils at the time of the operation, by using a magnification of ten diameters to show evidence of disease, is a step in the right direction in doubtful cases, but this method gives us no index of the germ infection. But the method of incomplete removal suggested by him, may leave a remnant which when covered by scar tissue is a dangerous focus of infection.

Halstead[3] remarks, the well known complex of tonsillar infection associated with acute inflammation of joints, is now frequently seen; in one case with apparently normal tonsils had intense infection of the joints. But with careful expression of the tonsil found an active organism. The subject can not be spoken of too often to bring home to the general practitioner and public at large, the relationship between focal infection (especially tonsils), to joint involvements, or infectious processes in other parts of the body, such as endocardium, alimentary canal, etc.

Acute rheumatism and the tonsil are discussed by Vetlesen[10] in their etiological and pathological relations; radical treatment is indicated. Lesca[11] speaks of the tonsil as entrance avenue of several infectious diseases. Quoting Welsh, he speaks of certain anæmias, as possibly originating in tonsil disease due to the production of hemolysins which are found in the infected crypts.

In 70.05 per cent of boys in Girard College[12] who were tonsillectomized, they felt the operation to have been of service to them both physically and mentally.

Systemic infections that[5] gain entrance through tonsils, make a list too long to enumerate.

In a Montreal Hospital[5], 3.5 per cent cases admitted for tonsil operation had albuminurea and in most cases casts.

[6] In taking up a study of tonsil in relation to the blood stream, Winckler says the composition of the blood is most essentially affected by the still unknown function of the tonsil. The hemaglobin contents are not modified through the absence of the tonsils, sometimes even increased. It is certain however that a remarkable improvement of children, who do not thrive properly, is accomplished through the enucleation of relatively small tonsil.

From the standpoint of efficiency, which is a prominent factor in the control of the health of large bodies of men, I will quote the following taken from health records of the U. S. Army and Navy:

Cases of Tonsilitis—Army.

1905—2,728, days lost, 14,848.
1906—2,380, days lost, 13,106.
1907—2,347, days lost, 14,099.
1908—3,221, days lost, 18,705.
1909—3,685, days lost, 21,399.
1910—3,639, days lost, 19,699.
1911—3,156, days lost, 17,471.
1912—3,459, days lost, 18,429.
1913—2,570, days lost, 13,677.
1914—3,263, days lost, 16,992.

Cases of Tonsilitis—Navy.

1911—3,121, days lost, 16,445.
1912—2,767, next to gonorrhœa, 5,658.
1913—Acute, 3,027, days lost, 13,824.
Chronic, 121, days lost, 1,284.
1914—Acute, 4,372, days lost, 19,684.
. Chronic, 136, days lost, 19,411.

It is a fact that these men would not have been enlisted had discoverable disease or chronic hypertrophy of the tonsil been found to exist.

Brodski[13] has had opportunity to study 610 cases of angina in midshipmen during 17 months of the war. Tonsilitis interferes with fitness for work, and endangers future career of these boys. Ten per cent of these cases were followed by acute articular rheumatism. Radical work must be done in the interval of attacks. Any objection on the ground of the organism being deprived of an organ with a physiological function is irrelevant and futile. For prophylactic reasons (and here I thought the term was original with me), the author advises surgical treatment.

Similar reports from Italian Army Surgeon[15].

In conclusion, I would state that any doubt in my mind regarding the timeliness of this paper was dispelled by the remarks of a prominent laryngologist who as I remember, stated that it was impossible for him to determine a healthy tonsil from mere inspection and that he does associate most healthy looking tonsils as a possible source of various infective organisms. And every effort is then to be made to discover possibly diseased tonsils. Also the terse quotation of Professor Coolidge of Harvard[16], who says, "If it is believed or even seriously suspected that they (tonsils) are entering points of constitutional infection, it is perhaps better to sacrifice many innocent tonsils rather than to allow one guilty one to escape." In advancing or holding to what might seem radical ideas, it is not my desire to remove every tonsil in every patient, but I do feel that we are justified, from opinions, facts and general personal experience in maintaining that all tonsils where a diseased condition is in doubt, should be removed, and that the procedure far from being harmful, is a long step in advance in prophylaxis and preventative medicine.

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Discussion.

The Chairman: Have you used it, doctor, before the operation as a preventive?

Dr. Forbes: No, afterwards. I have had no cases of tonsilar hemorrhage and I believe it is because I dissect the tonsils and that I do not crush them and always control hemorrhage at time of operation.

In regard to the prepared serums I think it is very interesting to note results. In a series of four cases of hemorrhages which I had, not from tonsils, but from hemorrhage in connection with the gums or the throat and nose, I have been able to procure through the courtesy of the Lying-in Hospital, New York, some of their serum. You probably know that they keep a supply of fresh serum and they are able to do this by testing the pregnant women and taking their blood without harm to the patient. The fresh serum is prepared in the way that Dr. Booth mentions. They are allowing it to precipitate cold and not centrifuged.

I used the serum which they gave me in three cases with absolutely good results. In the only case in which I tried the horse serum, I had a most distressing reaction and the patient was in the hospital for three or four weeks. He had acute symptoms. His joints became swollen, first one and then another and I believe he had pleurisy. We were looking for all sorts of conditions and it came down to the fact that it was a secondary and anaphylactic reaction following on the primary which was a very marked reaction. Now, for the human serum which they are using in the Lying-in Hospital, New York, they are using it over in Boston and as far as I know there are no cases of anaphylaxis that have to be reported.

REPORT OF A POSSIBLY MILK-BORN EPIDEMIC OF INFANTILE PARALYSIS.

By JOHN C. DINGMAN, M.D.,
SPRING VALLEY, N. Y.

As may possibly be inferred from the program of today's session, I am not going to announce any new scientific discovery, but simply to report as accurately and briefly as possible an interesting series of cases of acute anterior poliomyelitis and certain circumstances directing suspicion to a small milk dairy as the source of infection.

On July 23 of this past summer I was called to attend sick children in three different and widely separated Jewish boarding houses. In one called the "Levine House" I found four children ill with what had been diagnosed and treated by another physician as malarial fever. They all became ill on the 20th and 22d of July, and they all presented the same clinical picture, i. e., fever, vomiting, obstinate constipation, and a drowsy soporous mental condition. Two of these cases went on to frank paralysis of the lower extremities, while the other two recovered without showing any muscular weakness or paralysis.

On inquiry I learned that these four children, who were cousins living in the same rooms, all used raw milk from a Jewish dairyman, whom I will refer to as X, while the other three children in the house, all well, used milk from another source.

Even before any diagnosis of poliomyelitis had been made the mothers were quite positive that the milk had caused the illness. The diagnosis of poliomyelitis in these children was verified by Dr. LeGrand Kerr of Brooklyn.

In one of the other boarding houses, called "Locust Court," I saw a 3½-year-old girl suffering with a similar illness, although more severe and who two days later developed paralysis of the muscles of deglutition and speech and a slight affection of the muscles of one side of the face. This case of the bulbar type, showed considerable meningeal symptoms and was seriously ill for several days. The child was examined by Dr. Koplik of New York, who concurred in the diagnosis. The rest of the children at Locust Court, four or five in number, escaped.

When I learned that Locust Court was supplied with milk by the dairyman X, and that the children had used the milk raw, I became suspicious and on July 27th visited the dairyman's premises and examined them thoroughly. The dairy consisted of only two cows kept in an extremely dirty barn. It has never been inspected by the health authorities and the proprietor had no permit to sell milk. About 50 feet from the barn was a stone and frame dwelling. X lived in the end nearest the barn while the greater part was occupied by a Russian who rented rooms to several small families.

The house was very dirty, unscreened and swarming with flies: Slops and garbage were thrown off the porches and the housekeeping arrangements were primitive and unclean. X's milk utensils were greasy and ill smelling, and his milk was delivered warm, some being delivered three miles away. On the front porch I found a four-year-old boy who had been sick five days and showed a beginning paralysis of the right leg. He had been treated by a local doctor, but no diagnosis had been made. After patient questioning of all the tenants, I developed the fact that a four-year-old son of the Russian landlord had been taken acutely ill with fever and vomiting on July 4th, and had been in bed and unable to walk for some time. The parents had not called a doctor and the boy was then up and out. Soon I saw him coming up the walk, holding his mother's hand and dragging one foot as he walked. He had only been able to walk at all for a few days.

Only July 23d, the same day that I had been called to the Levine House and Locust Court, I was summoned to the third boarding house called High View House. There I saw a four-year-old boy who became ill the day before with fever and vomiting. This boy ran a moderate course and developed a slight paralysis of the right leg. He was sent to the Willard Parker Hospital in an automobile, where the diagnosis of poliomyelitis was confirmed. This boy came to Locust Court from the Bronx on June 30th. On July 3d, he became ill with an acute otis media and was taken to New York for treatment. He was brought back to Locust Court on July 8th and remained there until July 16th, using X's milk while there. Only July 16th his parents moved to High View House, where he was taken suddenly sick on July 22d.

There were no other cases at High View House and had been none all season. High View House had its own dairy.

On Saturday, July 29th, I again visited X's dairy and also called on every house where his milk had been sold. Besides Locust Court and the Levine House and the tenants on the dairy farm, he supplied three other houses, D, M, and K. At D's there were no children and the milk was not used raw.

At M's house we found two families who had used X's milk for several weeks, but had boiled it before giving it to the children. The children were all well. At K's, one family of three children had used X's milk, but the parents were emphatic in their assertion that they had always boiled the milk before giving it to the children.

In the other three houses, namely Locust Court, Levine House and the dairy farm tenant house, as I have already stated, the milk was used raw and one or more cases of poliomyelitis developed in each.

The eight cases of the disease which I have described were the only cases which had developed in or about Spring Valley up to this time and for some weeks after. The few scattering cases which did occur later on in the summer, apparently had no connection with this group of cases.

In order to determine whether these children, all of whom came from New York or Brooklyn, might have received the infection before coming to Spring Valley, I will go into the cases more in detail. At the Levine House there were four cases. Paul G arrived from Brooklyn on July 4th, commenced using X's milk on July 10th, became ill on July 22d, and developed paralysis of right leg July 26th. Eva W arrived July 8th, commenced using X's milk on July 10th, onset July 20th, paralysis developed July 25th. Mildred H arrived July 9th, commenced using milk July 10th, onset July 18th with no apparent paralysis. Louis H, brother to Mildred, arrived at same time, onset July 20th with no apparent paralysis. There were three other children in this house who used milk from another source. One of them a nursing infant became ill on July 28th, but a diagnosis of intestinal trouble was made by the doctor in charge. Otherwise, these other children escaped. The case at Locust Court, Sylvia R came up about June 1st, became ill on July 22d and developed paralysis July 24th.

The case at High View House, as I stated before, came to Locust Court on June 30th, returning to city July 3d, and was again at Locust Court from July 8th to 16th. The second case at X's dairy came up about July 8th and became ill on July 22d. Thus it is clear that all of these children were using this milk between the 10th and 16th of July, and that at that time the Russian boy was in bed with the disease, on the premises where the milk was produced.

The city addresses of all of these children were visited by a friend of mine, a physician, who found that there had been no cases of poliomyelitis in the houses in which they had lived and no history of any exposure to the disease.

After careful study and investigation, it seems reasonable to me that one or more messes of the milk have become contaminated by the discharges or vomitus of the Russian boy, who became ill on July 4th; the infective material probably being conveyed by flies, who had access to the sick boy and to the milk and milk utensils, and that the disease was carried to the other seven cases by means of the milk. Strongly corroborative evidence of this can be advanced from the following facts: (1) that all of the cases had their onset on either July 20th or 22d; (2) that they all used the milk raw and that the families who used the milk during the same period but boiled it, escaped; (3) the fact that the milk was not chilled but delivered warm has made it an excellent culture medium for the virus; (4) at that time all the cases of this disease reported within four or five miles of Spring Valley were among the customers of this dairyman. The cases were all of a fairly mild type and all have recovered with very little remaining paralysis except one. The fact that, at the Levine House only those children who used X's milk became ill must be considered as strongly corroborative evidence.

There are the facts as I have been able to collect them. If anyone wishes to cross-examine me, I will be glad to answer any questions.

RADIUM IN VARIOUS SURGICAL CONDITIONS.*

By JOSEPH B. BISSELL, M.D.,
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IT is designed in this short paper to consider the use of radium in some of the usual surgical diseases, not including cancer. Besides the many important physical and chemical qualities of radium already in general knowledge other unutilized properties are constantly being developed in the different research, physiological and chemical laboratories throughout the world. Consideration of the subject offers interesting speculation aside from the effect upon malignant tissue. In fact it is not so certain that the action of radium may not cause changes in other pathological conditions, both medical and surgical, of greater importance than in cancerous growths. This is not to depreciate its action in attacking local manifestations in morbid changes in human structures and functions. Nor is it to minimize the role of radium in cancer. In certain forms of malignancy the results of radium treatment are so satisfactory and so striking as to seem almost miraculous. This statement is not confined to the superficial skin cancer alone, but relates to pathological growths involving the deeper tissues, and in some cases, even to extensive malignant infiltrations in widely different parts of the body.

As a therapeutic agency, the writer has made use of this remedy in several hundred non-malignant cases in Bellevue and St. Vincent's Hospitals, in the Radium Sanitarium of New York, and in private practice. The results have been instructive, interesting, sometimes puzzling, and frequently gratifying. I have tried to make our knowledge of the varying properties of radium fit the indications for treatment.

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* Read at the Annual Meeting of the Medical Society of the State of New York at Saratoga Springs, May 17, 1916.

The destructive, the absorbing and the constructive properties of radium, as well as some of its abstruse chemical actions are also taken into consideration; for instance, knowing by experience of the stimulating effect of some of its rays, endeavor was made to use this quality in sluggish suppurating ulcers and sinuses associated or not with diseased bone. In this short but rather discursive paper, numerous unconnected pathological states are considered and treated without reference to their relationship to each other or to any single disease condition. The application of radium has varied from the treatment of unhealthy and unhealed ulcers of different types to fibroids of the uterus, and from a keloid of the scalp to the cure of a callosity on the toe. In the course of these wide excursions results are obtained which give rise to thought and consideration and assist us in determining more definitely the uses and utilities of this element.

Following are the cases:

Miss B., thirty years of age. She has an inflamed, thick, hard corn on right little toe. It has been present over a year. Radium applied twenty minutes each time, with no visible reaction. No screening. After six applications, four or five days apart, the corn entirely disappeared, without local irritation to the neighboring skin.

Mr. B., twenty-nine years old. December 16, 1914. Has an inflamed corn on the ball of left foot, at least one and a half inches long, and one inch wide. It is exquisitely tender on pressure. He walks with difficulty and with the aid of a cane. The callosity has been cauterized and cut out repeatedly, but always returned. Ten milligrams of radium applied for fifteen minutes at the first application. Five days later a large amount of callous was removed in the center of the corn, and into the hole thus left a tube containing twenty-five milligrams of radium, unscreened except for the silver casing, was applied for fifteen minutes. The surrounding tissues were protected by one millimeter lead screening, covered with two millimeters of rubber. This procedure was used several times at six-day intervals. Subsequent examination showed patient to be entirely relieved. He was able at the end of a few weeks to return to his business as superintendent of a mine.

Mrs. C. deR., May 13, 1915. Fibroid of uterus. Fifty-one milligrams of radium applied in the cervix for five hours. June 20, fifteen milligrams applied for ten hours. September 1, report from doctor in charge finds on examination that the growth has markedly decreased in size. Symptoms of hemorrhage and pain and pelvic discomfort have ceased, and three months later the growth was so small that an operation was unnecessary.

Mrs. S. M. H., forty-seven years old. April 3, 1915. Fibroids. One tumor, size of a small orange on the anterior surface of uterus. Large fibrous os. April 3, fifty-one milligrams of radium, in one tube, applied in the cervical canal for twenty hours. Complains of considerable nausea during the application. On fourth day after the application patient developed what was thought to be grippe, with headache, sore throat, cough, and temperature running to 104. April 10, last night, however, the temperature was only 99.8 and she came to the sanitarium this morning for another application. Cervix is congested, tender, swollen, bleeds easily and she has a rather profuse discharge. Fifty milligrams applied as before. Complains again of nausea. No pain except a backache. Tube removed at 9 P. M., after a ten-hour application. April 12, her doctor telephoned this morning that she had a temperature of 105.6, severe headache, rectal tenemus, slight diarrhœa, frequent and painful urination and other symptoms of local irritation. She had a very stormy time following this, with temperature, chills, bloody urine, pain in kidneys and ureter region, all symptoms of a hemorrhagic pyelitis. This condition lasted about three weeks then slowly disappeared. When examined May 10, only a vestige of the anterior fibroid remained and the os was soft and patulous, with no evidences of fibroids. In this case there was a severe infection extending up one or both ureters from a radium burn of the uterus She had also a moderate proctitis probably of a similar origin. Eventually the patient made a complete recovery from these conditions.

Marie D., twenty years of age; telephone girl. April 3, 1915. Keloid, one inch in diameter on the right breast. This followed a scald four years ago. Fifteen milligrams applied in varnish applicator for thirty minutes. April 11, slight blister and swelling over the lesion. Twenty-five milligrams of radium in tube applied for ten minutes. April 19, varnish applicator five milligrams and tube of ten milligrams, applied with rubber screening for ten minutes. June 27, 1915, the keloid is about half its former size, and very much thinner. Applied two five millimeter varnish applicators over the soft keloid for twenty minutes. In September, when she reported for final examination, there was only a thin white scar remaining.

Angeline F., seventeen years of age; milliner. November, 1915. A keloid scar four inches long, half an inch wide, at some points elevated a quarter of an inch. It runs directly across the left cheek from her ear. Radium applied from twenty to thirty minutes, once a week, fifteen times. Keloid has softened and only the soft scar remains when she ceased treatment, February 15, 1916.

N. McC., female, thirty-seven years of age, seamstress. February 22, 1915. Second toe of right foot amputated for osteomyelitis. The wound did not heal because of dead bone. On admission to the hospital she had an indolent sinus from which protruded flabby granulations.

This sinus had been irrigated every day with various solutions without any improvement until March 7, when ten milligrams of radium were applied in the sinus for ten minutes. The three following days the discharge was very much less, the granulations became smaller and the pain, swelling and tenderness disappeared at the end of a week. March 18, a second application of radium was made for ten minutes. Improvement continued and on April 4 patient was discharged cured.

H. D. L., fifty years old, single; brushmaker. Admitted to St. Vincent's Hospital, August 5, 1915. He had a history of osteomyelitis of the right knee, twenty-five years before. Now an acute arthritis of the knee, which had lasted two weeks. At present the knee is twice as large as the opposite one, red, swollen and tender, has several fluctuating points, and is discharging profusely from a sinus on the upper side of the leg just above the joint. August 6, several incisions were made into the soft points and large quantities of pus discharged from these incisions. Temperature 104 and pulse 150. August 25, there were several sinuses about the joint discharging sero-purulent fluid so copiously that the dressings have to be changed twice a day. X-ray picture at the time shows septic infection of the knee joint, involvement of the lower end of the femur, patella and tibia; cartilage destroyed. August 27, the destruction of the joint was apparently so complete and the extension into the bony structure so marked that amputation of the leg at the upper third of the hip was advised. Patient refused operation. 100 milligrams of radium applied in the different sinuses, in five tubes, for ten minutes. At the end of three or four days after this application the discharge was very much less, redness and pain greatly improved, and the knee was markedly smaller. September 8, radium applied as above, after which the discharge continued to diminish, pain decreased and the swelling about the joint also lessened. The discharge cleared up so rapidly that on October 1 several of the sinuses were healed, and there was only a slight discharge remaining. Dressings were changed only every third or fourth day instead of, as previously, twice daily. October 25, another application of radium was given for twenty minutes. As only one sinus was still discharging, a tube of twenty milligrams of radium was put into this sinus, the remainder of the 100 milligrams of radium being strapped around the joint at equi-distant points. November 25, discharge practically absent; last sinus closed; knee joint seems to be ankylosed, but no longer tender or with fluctuating points. Patient was up and about the ward on crutches. November 25, a point of fluctuation appeared just below the patella. This was incised, small pocket of pus evacuated and it was healed by December 7. January 7, 1916, patient discharged cured, with ankylosed, but useful knee joint. He is able to go about his business with the help of a cane.

S. B., forty-three years of age, male, married; laborer. Admitted to hospital July 8, 1914. A few days previous patient had been injured by having his knee caught between a car and a packing box. On examination his right knee was swollen, red, hot and tender. A small punctured wound is seen on the lateral internal aspect. Pressure caused a copious discharge of purulent, oily like material; evidently the injury communicates with the joint. Leg flexed and very tender to the touch. Has had chills; temperature, 104, pulse, 140. July 11, wound enlarged and tube inserted for drainage. Joint fluid and pus discharging through tube. Diagnosis acute purulent sinovitis. Knee and the patient's general condition became steadily worse, and as the joint seemed to be pretty well disorganized, amputation was advised and refused. Several points of suppuration were opened and drainage tubes inserted into the joint. A week later, after amputation was again refused, 100 milligrams of radium in divided doses were applied through the tube in the knee joint for twenty minutes. Within a few days the knee began to show signs of improvement. September 7, radium applied again as above for ten minutes. September 23, marked improvement. There is very little tenderness and the knee is resuming its normal shape, but is still flexed at an obtuse angle of about twenty degrees. All the sinuses are healed except two, and from them there is very little discharge. Radium applied in these two sinuses and around the circumference of the knee for about ten minutes. October 8, radium applied to the only remaining sinus for ten minutes. October 20, all sinuses are healed, and on November 30, after remaining in the hospital in order that the stiffness and pain on attempt at motion should be treated by baking, he was discharged cured, with ankylosis at about an angle of twenty degrees.

Rose E., seven years of age; came into the hospital July 14, 1915, with a swelling over the first metatarsal bone of the foot. No history of injury. There are three small sinuses in this region. The X-ray shows an osteitis in the first and second metatarsal bones. She was treated in the usual surgical manner up to September 6, with no improvement. September 8, radium applied for ten minutes, and again on September 25, for ten minutes. After the first application swelling began to subside, the ulcers around the sinuses began to contract and heal up and the discharge to decrease. October 1, radium again applied for ten minutes. October 15, only one sinus remained, the ulcers have healed up, swelling is much less, and there is no discharge. Without further treatment of any kind this patient continued to improve and was discharged November 1 as cured. The case was apparently one of tubercular osteitis.

These uses of radium, with one exception, are not new. In 1910, Dr. Wickham of Paris, reported over sixty cases of fibroids treated in the way just described. Following treatment, hemorrhage and discharge ceased, pain and discomfort disappeared and the tumors themselves diminished in size or were entirely absorbed.

The removal of benign growths like callosities or keloids is of course known to us all, and is a very satisfactory and frequent result of the use of radium. The exception spoken of above is the local usage of radium in bone and sinus work, and as far as I know is original with the writer. In a recent issue of the *Pennsylvania Medical Journal,* Dr. W. R. Cameron described the effect of radium applied locally to a number of patients in the army camps in England. These soldiers for the most part were suffering from sluggish ulcers, indolent infected wounds and unhealed sinuses. They were treated in the manner instituted by the writer personally at these English camps last summer, and Dr. Cameron expressed satisfaction at the results obtained after he had made a satisfactory personal examination of many of these men.

SOME PRACTICAL EXPERIENCES IN MEDICAL INSPECTION IN RURAL SECTIONS.*

By **WILLIAM A. HOWE, M.D.,**
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DURING the first year of the administration of the medical inspection law, many impressive and varied experiences have arisen throughout the State. Those to which I wish to call your attention this afternoon are taken from the rural sections where many of our most difficult problems in this phase of the work are to be found.

Some as you will note are highly gratifying in the splendid results accomplished and the progressive interest indicated, while others are equally as discouraging in their serious embarrassment to the work. Of the latter let me speak first. In doing so I will submit in most instances quotations from certain reports by district superintendents as to the manner in which this important feature of educational work has been performed. One says:

"Twenty or thirty pupils were examined in one-half to three-quarters of an hour and many defective children reported as normal."

Another writes:

"Twelve or thirteen pupils were examined in one-half hour and certificates of perfect health issued to the whole school including one girl not in attendance or even seen by the examiner."

Still further we read of "fourteen pupils being examined in twenty minutes," while another says, "thirty were certified to in a ridiculously short time."

Another says, "the medical inspector looked at sixteen pupils in forty minutes, gave a clean bill of health to all and collected twelve dollars for services. In this district one child was suffering very seriously from skin disease and under treatment."

"As made in my district," one writes, "it was little more than a questionaire answered by the pupils. Two or three minutes were given to each examination."

The same thought is expressed by several others who further add, "children known to be mentally defective were reported as normal."

One writes, "nearly every child in my district was reported as in perfect health."

Many instances were cited where certificates were issued without seeing the child, some being questioned on the telephone, and even the teacher filling out the cards and the physician signing them.

Several cases were reported where operative treatment was necessary on tonsils a few days after a perfect bill of health had been given.

In another instance, the day after the supposed inspection was completed and health certificates issued, the teacher discovered a bad case of pediculosis in one of the children. When she reported it to the inspector he absolutely refused to advise or in any manner assist in its relief.

In one district, $2,000 was expended for medical inspection in one year, and little or no follow-up work accomplished. In this district, thirty children were examined in one hour and one dollar paid for each examination. It is but fair to say, however, that in this district many successful cases were reported.

One superintendent on examining the certificates of several of his schools finds the report exactly the same for the teeth of all of the children. In this district though all were given a certificate of good health, several cases of seriously impaired breathing were operated soon after inspection.

One of the most striking instances that has come to our attention is that of a child wearing one glass eye to whom a certificate of perfect vision was issued for both eyes.

Several teachers have complained of the same tongue depressor being used on thirteen or fourteen children, then on herself, without such being sterilized. In one case the teacher became ill with tonsilitis within seven days.

Trustees have also complained of this same neglect, offering such as sufficient justification for not complying with the law.

A few days ago a trustee reported to the department regarding medical inspection from which I quote: "The physician is addicted to drink. One girl to whom a perfect bill of health was given was operated on shortly after for adenoids. He examined our entire school and used the same teaspoon in succession to hold down the tongue of each scholar."

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* Read at the Annual Meeting of the Medical Society of the State of New York at Saratoga Springs, May 16, 1916.

It should be needless to further refer to the hasty and superficial inspection performed in certain localities. Such is by no means the rule. It is rather the exception, though far too much is done.

In the midst of so many neglectful experiences we find many, many other occasions in which the work has been carefully and conscientiously performed in which most gratifying results have been accomplished.

Many grateful parents have written thanking the department for the wonderful relief extended to their children. Hundreds, yes, thousands of children have been placed on a higher plane of physical fitness thus enabling them to make more normal progress in school.

While most of these cases as might be expected, belong to those so commonly seen, many have been most impressive.

Two children have come under our observation with congenital cataract whose vision amounted to practically nothing. They have been successfully operated, restored to vision and placed in school where satisfactory progress is now being made.

In one family three were found with so little vision as to render regular school work impossible. The two of school age, have recently been placed in the New York State School for the Blind at Batavia, where they will receive an academic education, taught some vocation and be made self sustaining citizens.

Another child with a badly disabled foot following infantile paralysis has been greatly benefitted by tendon transplantation. This case is perhaps one of the most successful and spectacular which has come to our attention.

In two instances where pupils were incorrigible, impertinent, backward and unmanageable in school, prompt improvement followed the removal of septic tonsils and obstructing adenoids.

Several cases of tuberculosis have been found among our teachers, while in one district this disease had existed among the pupils for nearly fourteen years.

Many pupils throughout the State either in the pre-tubercular or incipient stage of the disease have been recognized and greatly benefited by sanitary or institutional treatment.

The fact that tuberculosis increases so rapidly among children during their first few years in school should demand the serious consideration of not only health workers, but educators. Our joint energies should be directed to determine the factors entering into these alarming conditions that the proper preventive measures may be speedily administered.

A few months ago one of our teachers in central New York was found to be suffering from incipient pulmonary tuberculosis. He was promptly advised of this fact, resigned his position and enter Raybrook. From that institution he wrote to the department a few weeks thereafter as follows: "I am profoundly grateful that the great Departments of Education and Health, should be so interested in my physical welfare. It now looks as if my disease was discovered sufficiently early to permit its arrest as the doctor tells me I am already considerably improved."

Increasing interest is being manifested in medical inspection in the rural sections of the State. This is indicated not only in a general demand for more efficient services at the hands of the inspector, but in systematic efforts to extend relief to children needing attention.

A few days ago one of our village districts reported fifty cases of obstructed breathing among children of foreign parentage, or from dependent families. During the next few weeks these will be referred to specialists in Rochester who have generously designated free services to deserving children.

In another village in Western New York certain school rooms are being utilized as a temporary hospital where, under the supervision of an experienced nurse, physicians and surgeons are administering relief to local children.

Again in the town of Schenectady, seven rural schools have united in the employment of a school nurse who is devoting her entire time to inspecting the children thereof and to the improvement of school and home conditions. This nurse though employed for only the past three months, has already accomplished such splendid results as to fully demonstrate the practical value of such services.

In another section of the State we find a rural teacher referring many of her children to specialists in the city of Buffalo, where embarrassing physical defects have been relieved thus insuring to pupils far greater progress in school.

One district superintendent who early in the year clearly indicated her indifference or opposition to the measure, writes under date of May 10, 1916, that she has succeeded in having more than thirty deserving children in her district relieved of serious defects, that she is now greatly interested in the work and she wishes she might devote her entire time to it. She closes her interesting letter by saying: "This work is indeed well worth while."

In conclusion and in view of such experiences as well as many others which might be given, let me suggest:

That, only physicians interested or willing to take an interest in the work be utilized as medical inspectors,

That, the utmost care be exercised in all examinations and that definite information be given to parents as to defects found,

That, physicians should receive a fee commensurate with the services rendered, which on all occasions should be his best,

That, physicians, dentists, teachers, parents, pupils and nurses should co-operate in the entire system of school inspection.

That, the real success of school inspection will be measured by the thoroughness with which the examinations are made and the results accomplished, and by our ability to teach health education.

THE OPEN AIR SCHOOL CHILD AS A TYPE.*

By EDWARD DURNEY, M.D.,
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THE forward strides made during the last few years in the cause of school hygiene have been productive of notable results, chiefly evident in the highly organized systems for the physical, social and intellectual betterment of the child of school age. The progressive development of Medical School Inspection, which provides for the continued observation of child life in the school and home, is responsible for the recognition of various special types, their needs, and their ultimate favorable disposition. This type segregation has brought into prominence a class of children hitherto overlooked as such. The privileges of sick or invalid children treated at home or in the hospital could not be claimed by them; the ever watchful civil authorities demanding daily attendance at school, saw no exception in their cases. They were, therefore, obliged to take their places in the rank and file of school children whose healthy bodies and active minds were ever ready for the successful fulfillment of the daily schedule.

The type referred to is the child whose physical inefficiency from whatever cause, limits his activity in normal channels. Naturally, the cases for which the Open Air School System has been instituted present a wide variety in type, as individuals, but considering prominent physical signs and symptoms, a uniform classification can be made.

The common picture is one of disordered nutrition, with its accompanying systemic disturbance. While the etiology is varied, lack of good food, good air and proper rest are usually active agents in maintaining the subnormal condition. Family history and home life are strong contributing factors. We meet the child who gives a positive family history of tuberculosis, with or without actual exposure; the child convalescing from illness, and the child who is the heritage of the alcoholic or the epileptic. The majority of cases in the public Open Air Schools are drawn from the poorer element of our large communities. Other cases from a higher social plane are received, due to the ready consent or actual application of intelligent parents.

These subjects of malnutrition are usually underweight and frequently anaemic. Physical and mental vigor are wanting, the posture assumed is usually incorrect standing or sitting, cases of flat chest and stooped shoulders being numerous. Inspection reveals the emaciated type and the type whose tissues are flabby and atonic. Working from cause to effect we see the child of abnormal nervous activity whose powers of concentration are completely dissipated, and the listless, dull child whose energy is insufficient for the working school day. Defective living offers at once a cause for the defective physical condition and a potent obstacle to its treatment. Home influences frequently outweigh all others which are being exerted for the physical and social welfare of the child. Poverty, filthy surroundings, lack of space and air, ignorant and negligent parents are circumstances which send forth the sickly, unkempt product whose digestive organs are frequently empty and who presents a picture of progressive decline.

Next to nutritional defects in order of common type characteristics come the manifestations of a disturbed nervous system. These signs are frequent, if not constant, in poorly nourished children. The lowered nerve tone may be accompanied by exhaustion—the listless type—or it may be accompanied by abnormal irritability—the restless, active type. Cases coming to the school from the better families are frequently of the spoiled variety who have received undue attention and have been allowed privileges detrimental to their physical welfare and disposition. Chorea, which has been termed the school-made disease, furnishes its quota of borderline and convalescent cases to the open air school. Instances of habit-spasm or habit-chorea are also seen. Examples of organic nervous diseases most frequently encountered are partially recovered cases of Infantile Paralysis. As a general rule the idiosyncrasies of these subnormal children are magnified, and expert disciplinary measures are required to govern a class and at the same time to maintain the principle of freedom which is the keynote of the treatment.

Two examples from a class under the observation of the writer may be cited here by way of illustration: One, a girl aged fourteen years, whose admission was eagerly sought, became hysterical the first day because the dinner made no appeal to her. The second day the same girl fled from the building at dinner hour. She has been trained, and is now quite tractable.

The second case, a boy aged eleven years, undersized, cultivated what might be called a habit-spasm. When spoken to, called upon to recite, or required to walk from one part of the room to another, he would shrug his shoulders, open his mouth and draw down the lower jaw. His transfer was a happy circumstance as many of the other boys were rapidly becoming victims of the same habit.

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* Read at the Annual Meeting of the Medical Society of the State of New York, at Saratoga Springs, May 16, 1916.

The special remedial defects found among school children are prevalent in the candidates for the Open Air School, and every effort is put forth to institute treatment for their correction or removal. The excision of adenoids and hypertrophied tonsils, the correction of defects of vision and treatment of other diseases of the eye, the treatment of carious teeth and proper attention to the hygiene of the mouth, are measures far-reaching in results for good and in many cases figure prominently as initial stimuli to ultimate physical fitness.

A consideration of the needs of the type finds its answer in the adequate program and equipment of the present day open air school. School feeding plays an important rôle in the cure, and although it has been argued that many cases of malnutrition are not due solely to lack of food supply, actual experience and statistics gathered by reliable authorities furnish weighty evidence in favor of feeding, if the greatest good is to be accomplished. The teachers in charge of the classes are specialists in their line, and are generally successful in the selection and presentation of mental and manual work to meet the particular needs. The favorable attitude of the pupils toward the daily program is one of the strongest arguments in support of the plan. While some difficulties are encountered during the first days of attendance of new pupils, the general rule is a happy spirit of co-operation and a lively appreciation of the advantages of this mode of school life.

Marked improvement is shown in the majority of cases. While records of weight are kept and continued increase in weight toward the normal is the rule, gain in weight is not the only positive index of an improved condition. We have in addition the plainly visible signs of interest aroused, of animation in work and play and of renewed mental activity. The average gain in the Buffalo classes is about one-fourth pound a week. One girl gained thirteen and three-fourths pounds in four months, and one boy thirteen pounds in the same length of time. As an instance of the lack of favorable home conditions and home co-operation stands the fact that of twenty-two pupils in one class, sixteen lost weight during the Christmas holidays at home.

A listed summary of cases at present attending these classes will assist in conveying an idea of the predominating physical defects and deformities present at the time of first examination. In one class of thirty, the following call for special mention: Four cases of cardiac insufficiency, three of asthma, three brothers recently recovered from typhoid fever, one post operative case (the operation an appendectomy), one of chronic bronchitis with adenoids and hypertrophied tonsils, and one serious case of defective teeth in which dental treatment has accomplished excellent results. In another group of twenty, nasal obstruction existed in ten, hypertrophied tonsils in five, defective teeth in fifteen, cervical adenitis in five, orthopedic defects in four, chest deformities in seven, cardiac insufficiency in four, pronounced nervous symptoms in seven, asthma in two, three of the cases giving a positive family history of tuberculosis.

A problem case now under observation is that of a boy aged twelve. His dissipated father has been committed to an institution for the insane. The mother supports her six children by daily work which takes her from the home. This boy is a truant, needing strict discipline and manual work. He is very nervous, underweight, poorly nourished, is a mouth breather and has bad teeth. He is of rather amiable disposition but is unresponsive except at intervals. The case seems to be ripe for institutional care.

Illustrating the mental lack which accompanies the physical is the case of a boy who resisted all plans and devices to secure his concentration. Different forms of manual work were given him as a relief from the mental, but without avail, until the teacher in desperation provided him with knitting. This work proved all-absorbing to the boy whose industry in that line knew no bounds. In time his mental equilibrium was restored and when sufficiently improved physically, he was returned to his regular grade.

As a distinct and separate division of open air school children, may be mentioned the cases of tuberculosis which are not accepted in the classes with non-tuberculous cases. These children constitute a large proportion of the number requiring open air treatment, and open air schools and pavilions have been established for them wherever possible. The enumeration of the physical signs and characteristics of this class is hardly in order here, but any classification of Open Air School types would be incomplete if this important group were omitted. The class maintained in connection with the Buffalo Municipal Hospital is attended by hospital patients and by day pupils who are under close observation. These children are eager to learn, they enjoy the hours spent in class, and seem to look upon their school life as an indication that they are continuing as active members of the community. Under these ideal conditions of school and hospital life, rapid progress toward recovery is to be noted and many cases have been discharged.

The Open Air School system is at present operated for the benefit of the few who are selected, the type here considered. The term, Open Air School Type, should be made to include a majority of all children attending school. The benefits of outdoor air, recognized as both prevention and cure, should be extended to the great mass of public school teachers and pupils who at present spend their school hours in rooms where the open window is indicative of transgression of the school regulations.

HEALTH INSURANCE—ITS RELATION TO PREVENTIVE MEDICINE.*

By **B. S. WARREN, M.D.,**
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and

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SICKNESS insurance presents to its advocates various possibilities, depending upon the angle from which they approach the subject. The employer sees in it an increase in labor efficiency and a stabilizing force, or at least a business-like way of meeting the problem of sickness; the employee expects to find in it relief from the dread of what would happen to him in case of sickness and with this relief, greater economic independence; the physician regards it as a remedy for unpaid doctor's bills; the economist views it as a basis for co-operation in other fields and a remedy for industrial unrest; the public looks upon it as a relief measure which will lessen the need for so much charity; the health official hopes that it will prove to be a measure for the prevention of disease. All advocates realize its possibilities for promoting health, and lately, almost by unanimous consent, the name has been changed from "sickness" insurance to "health" insurance. The change in name, however, has not been accompanied by any material change in the measures proposed. The proponents of these measures advocate them altogether on the grounds that they are health measures, notwithstanding the fact that not one of them contains any provision for health machinery. They are proposed as health measures even though not one single provision has been made for the employment of health experts except in an advisory capacity, nor any authority provided for spending any part of the funds for disease prevention. These omissions occur in spite of the fact that provision is made for the state to pay one-fifth of the funds, in addition to the expense of supervision. It is proposed as a health measure notwithstanding the fact that none of the proposed plans make provision for membership of health experts on any of the directing or supervising bodies. The plans, as proposed, vest the administration and control in local boards composed of employers and employees, with supervision by a state commission on which no provision is made for a doctor of public health. A provision is not even made for the employment of health experts. One of the proposed measures provides for the employment by the carriers of medical officers, but these should not be confused with medical officers of health. Furthermore, it should be remembered that preventive medicine now constitutes a special field of medicine, and that the general practitioner is no more fitted to practice in this field without special training than he would be to practice surgery without special training. These proposed measures may meet with the approval of those who advocate health insurance as a relief measure, and they may appeal to those interested in public health because of the fact that they do contain features which may indirectly result in disease prevention. The provision for adequate financial[1] and medical relief for sickness, non-industrial accident, and child bearing would undoubtedly prevent much disability. The provision for joint control and maintenance of the funds by employers and employees would furnish a basis for co-operative action and a financial incentive for the prevention of disease. The more extensive statistics of sickness made available from the disability certificates would be of value in epidemiological studies of disease. But it is very probable that these features would develop in local, independent, and unrelated ways, unless provision is made for their proper direction by men skilled in matters of disease prevention. It is not sufficient to point to the workmen's compensation laws and the nation-wide "safety first" movement, and conclude that sickness insurance will automatically result in a "health first" campaign. It must be remembered that loading all the cost of accident upon the employers created a direct financial incentive for them to prevent accidents, whereas, the distribution of cost upon employers, employees, and state would necessarily cause a diffusion of the financial incentive, and one should hesitate before forecasting a "health first" campaign. Unless some provision is made for machinery whereby the financial incentive may be organized and given proper direction, and the other forces utilized in the prevention of disease, there is little reason to hope for the full preventive effects of health insurance.

To public health officials the question then naturally arises as to what additions and amendments are required to make the proposed measures directly preventive of disease as well as measures for adequate financial and medical relief of sickness. In other words, what machinery is necessary to bring together, organize, and direct the forces which would be created by the enactment of these measures? In view of the fact that the States are already paying for departments organized for the prevention of disease it would seem best to utilize these existing agencies, rather than create new and independent ones. In States where the health departments are efficiently organized it would be easy to extend their operations into this new field of public service. Furthermore, in those possessing inefficient health departments it would appear that the building up of such would be wiser than the placing upon the State the burden of maintaining two health agencies, each operating independently of the other. The preventive phases of health insurance were considered at the last Annual Conference of State and Territorial Health Authorities with the United States Public Health Service, held in Washington, D. C., May 13, 1916, and the report of the standing committee on health insurance adopted by the Conference contained the following:

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* Read at the Meeting of the Committee on Economics of the Medical Society of the State of New York at New York City, November 23, 1916.

[1] For the relation of economic conditions to health, see Public Health Bulletin No. 76, Health Insurance, Its Relation to the Public Health.

"In the bill for health insurance that has been introduced in the several State Legislatures, the German plan has been followed, the matter of providing medical benefits has been left in the hands of the local bodies, and no provision has been made for correlating the system with existing health agencies. These are serious objections, since without such provision a health insurance law will have little value as a preventive measure, although it may meet with the approval of those who advocated it as a relief measure."

It was proposed that this co-ordination of the work of the health insurance system with the public health machinery should be effected in the following manner:

(1) By providing efficient corps of medical officers in the State health department to carry into effect the regulations issued by the State insurance commissions and to supervise the medical service; and (2) by providing for a close correlation of the health insurance system with State, municipal, and local health departments and boards.

To carry this into effect the following plan is suggested:

1. Make the State Commissioner of Health an ex-officio member of the State health insurance commission.

2. Detail a medical director from the State health department to assist the commissioner in supervising the administration of the medical benefits and to act as health advisor and director.

3. Detail district medical directors from the State health department to aid in the administration of the medical benefits in their respective districts.

4. Detail from the State health department a sufficient number of local medical officers to act as medical referees and to sign all disability certificates and to perform such other duties as may be authorized by law or regulation. This would provide a health machine composed of a corps of trained sanitarians subject to central control and direction.

To give some idea of the size of such a corps it may be tentatively estimated that it would require one medical referee to every 4,000 insured persons. In a State with 1,000,000 wage earners, this would mean 250 local medical officers giving their entire time to the study of the health of the insured persons. This, of course, would be in addition to the medical treatment furnished by the panel physicians.

The objection could not be offered that such a corps would be too expensive, for it must not be forgotten that all the measures now advocated provide for medical referees. The only additional expense incurred by this plan would be for the medical director and the district medical directors.

Even if the expense of the whole corps were an additional expense, the cost would not be prohibitive because the medical referees would more than save their salaries in the disallowances of unfair claims. Furthermore, while an estimate cannot be made of the amount to be saved by the entrance into the homes of the sick insured person of these health experts, it is safe to say it would be many times more than the sum of their salaries.

The feasibility and the advantages of this plan may be reviewed briefly in the following paragraphs:

CORPS OF FULL-TIME MEDICAL OFFICERS.

The plan proposed above is primarily based on the organization of a corps of full-time medical officers to be detailed from the State health department.

Qualifications and Duties.—It is proposed to select these officers according to civil service methods, their qualifications to be based upon their knowledge of preventive as well as of clinical medicine, and to make their term of office permanent after a probationary period of service satisfactory to the health administration, subject to removal only for inefficiency or immoral conduct. It has been suggested that they be subject to periodic examinations in order to determine their efficiency.

Their duties have been outlined as follows:

(1) To examine all insured persons claiming to be disabled, and issue certificates in accordance with the regulations promulgated by the commission; (2) to advise with the physicians attending sick members as to measures which will shorten the periods of disability; (3) to have supervision of all hospital and dispensary relief; (4) to advise the administrative authorities and all contributors to the funds as to the best measures for the relief and prevention of sickness; (5) and to perform such other duties as may be fixed by regulations.

Some Advantages of the Plan.—The consensus of opinion among students of health insurance is that medical referees are necessary for efficient administration, but there appears to be some difference of opinion as to the party to which the referee must be responsible. As Dr. Alexander Lambert has pointed out, "there are three antagonistic groups in your health insurance law—the interests of the carrier, the workman, and the physician,"[2] and it seems hardly necessary to suggest that the control of referees by any one of these interests might be unfair and very probably be detrimental to the operation of the insurance fund. On the other hand, if the referees are State officers and employed under the State department of health, they would be untrammeled in the exercise of their duties[3] and would bring to the health insurance system many other important advantages.

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[2] Discussion in the section on Preventive Medicine and Public Health, 67th Annual Session of the American Medical Association, Detroit. June 1916, abstracted in the *Journal of the American Medical Association, Sept.* 30, 1916, p. 1,018.

This plan can be very easily fitted into the measure proposed by the social insurance committee of the American Association for Labor Legislation by amending the section which provides for the employment of medical officers (medical referees) by the individual carriers so as to provide for their employment by the State under the health department as referred to above. This would be directly in line with the development of public health administration in the United States in which the all time local health officer is considered the proper unit of a model health organization, since the referees would not only act as medical referees, but would also be all time local health officers possessing the authority of the State and an unprecedented opportunity for preventive work. The advantages of this method of employment are far greater than would be the case if the medical officers were locally employed by the carriers. Among the advantages may be mentioned the following:

A. *In the Selection of Medical Officers.*—The prestige of State appointment and the permament tenure of office will attract better men at the same pay than would local appointment with a tenure of office subject to the whim of the local management of a carrier.[4] Men of this type are not to be found in every locality so that the question may well be raised as to whether physicians with the proper qualifications would usually be obtained. The probability is great that local politics, personal considerations, relations with other local physicians, and the absence of qualified men in a locality would often interfere with the selection of medical officers who are qualified to pass on the diagnosis of other physicians, to supervise the character of the medical service, and to initiate and direct measures for the prevention of disease. Certainly the unfavorable experience of small localities, and even of some large centers, in the selection of local health officers has afforded an example in the development of public health administration in this country which is not without its significance in this connection. If however, the medical officers are selected as State officials by examination according to a uniform standard of qualifications the chances for obtaining properly trained men and for eliminating the local obstacles to the work of referees are greatly increased. If the further requirement of special training and experience in preventive medicine is provided, there would be made available for each carrier or local group of carriers a trained health officer who would be skilled not simply in diagnosing disease when it occurs, but also in recognizing and removing disease causing conditions.

B. *In an Organized Corps.*—There would be created an organized corps of medical officers with a centralized health administration within State, district and local boundaries. These officers would constitute a mobile corps, capable of being shifted from one locality to another. This would tend to eliminate local influence of any sort, increase their independence in action, and permit them to have a better perspective. By this interchange of station, the experience of one locality would be more easily available for other localities, and the officers themselves would have the opportunity for varied experience and would become better trained and more fully equipped for all of their duties. The very fact that they would belong to an organized corps would greatly accrue to the advantages of their work and of the health insurance system. Inevitably there would be developed a spirit of team work, in itself of incalculable value. The opportunity for conference among members of the corps and for the interchange of experience and opinion which is regarded as so necessary in all lines of service, would be afforded. Progress toward standardization of all practices would be possible.

C. *In Completeness and Accuracy of Statistics.*—The value of the statistics of disability, which have been so generally urged as an important argument in favor of health insurance laws, would be greatly increased if the records were made by trained medical men organized into a corps. In fact, the question may well be raised whether, except for the increase in number, the reports of disability furnished by medical officers employed by local carriers, would be more valuable than the statistics now available. According to the recent report of a committee on the vital statistics section of the American Public Health Association[5] there was "no plausible guarantee of accuracy in at least 41 per cent of the (death) certificates as now presented to the registrar of records of the New York City Health Department." If, on the other hand, the reports of disability were made under the supervision of a central authority and by such a corps of officers as has been suggested, there is every reason to believe that they will be more uniform, more scientifically correct, more accurate and therefore of far greater value for epidemiological purposes than would be otherwise possible. The reports would be subjected to continual epidemiological analysis not only by the local medical officers but also by the district and State medical directors.

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[3] "Make State Officials the referees. The referee is then not considered as one of the medical corps. Because, just as soon as you make the man who decides whether a patient is sick also decide whether or not he shall go to work, you increase the expenses and put a possibility of undue influence between the patient and the physician which is human and cannot be ruled out."—*Lambert, Sup. Cit.*, p. 1,018.

[4] The tentative draft of the health insurance act submitted for criticism and discussion by the Committee on Social Insurance of the American Association for Labor Legislation provides: "Section 11. *Medical Officers.* Each carrier shall provide medical officers to examine patients who claim cash benefit, to provide a certificate of disability, and to supervise the character of the medical service in the interests of insured patients, physicians, and carriers"—*American Labor Legislation Review*, June, 1916, p. 248.

[5] U. S. Public Health Service Public Health Reports, Sept. 22, 1916, p. 2,539. The report said "While completeness of records of death is desirable, it is of no more importance than the accuracy of the causes themselves as stated on the death certificates. The primary necessity for reliable and adequate statement of cause of death is obvious. The high percentage of inaccuracy in certificates of death is well known to registrars, to life insurance companies, and to pathologists, who can compare clinical diagnosis with the demonstrated cause of death at the autopsy. If the 189 titles of the International List are studied in the light of present-day knowledge of clinical and pathological experience it will appear that there is no plausible guarantee of accuracy in at least 41 per cent of the certificates as now presented to the registrar of records of the New York City Health Department. In this 41 per cent we find 2,875 deaths in 1914 attributed to causes that can be accepted as reliable only after autopsy and 27,995 which are capable of verification by exact observations as by chemical, bacteriological, and biological tests before death, but failing such specific proof, represent no reliable statement of death without autopsy."

D. *In Extension of Laboratory Facilities.*—The diagnostic facilities afforded in laboratories maintained by State health departments would be greatly extended, not only by a wider use of existing laboratories but by calling into existence more laboratories for this purpose. The advantages of X-ray, chemical, bacteriological, and biological methods of diagnosis would be rendered available for all persons instead of for the comparatively few who now obtain this service from public or private agencies.

E. *In Making Free Choice of Physicians More Practicable.*—With a corps of medical officers to sign disability certificates and to supervise the medical service, the medical and surgical treatment provided for beneficiaries could safely be left to the physician of the patient's choice, and payment made on a capitation basis regardless of whether the patient was sick or well, after the manner of the English national insurance act. This method of selection and payment of physician for the medical and surgical relief would offer every incentive to them to keep their patients well and to endeavor to please by rendering their most efficient service. In other words, such a method would place a premium upon health, so far as the panel physician is concerned.

F. *In the Directly Preventive Character of the Work of Medical Officers.*—It is plain that the activities of these medical officers would be of a distinctly preventive character.

In order to certify as to disability, the medical officers would have to enter the home of every sick insured person. This would mean that the character of the medical service rendered by panel physicians would be subjected to intelligent survey by independent State officials. It would permit a trained health officer clothed with governmental authority to see the actual conditions under which all insured persons and their families live, and would mean that every patient would have a double service—clinical and preventive. The personal connection between the home and the health department, which is so greatly desired in public health administrations, would be possible. The value of such a service in the prevention of disease can hardly be overestimated.

For prompt and efficient dealing with infectious and contagious disease, the presence of a medical officer who is conversant with local conditions, trained in the methods of control and possessing the authority to act is generally conceded to be the first essential in the eradication of these diseases. It would mean that, equipped with prompt, complete and accurate reports, of morbidity based on the diagnosis of a skilled medical officer, action could be taken early enough to limit the number of foci to the minimum and thus greatly facilitate the work of restricting the spread of disease. The health agency would thus be placed on the job without loss of time and in the closest possible touch with the situation. Since the medical officer would be clothed with the authority of the State he would have the power to put remedial measures into effect not simply to recommend what measures ought to be taken. In other words the much desired all-time local health officer would be provided in every locality where there are wage-earners.

As a representative of the State the medical officer would be in a more independent position to fix the responsibility for disease-causing conditions than be could be if appointed by the local carriers. This implies not merely that he would be unbiased because of his specialized training and his scientific point of view, but that he would represent primarily the interests of the public rather than the interests of any one party involved. "Without fear or favor" he could place the responsibility for conditions where they belong. For example, the presence of harmful dusts or fumes in a manufacturing process, or the lack of screens in the home, or the presence of a polluted water supply would be fixed as the responsibility of the employer, the employee, the owner, or the local municipality as the case might be. His work would not be regarded as the effort of a radical reformer or the welfare activities of an employer. He would not be subjected to such considerations as may impel a company doctor to be more lenient in signing sick certificates in times of labor scarcity or to be more strict in times of labor abundance, or as may cause a benefit society physician to be complaisant in signing certificates in order to increase the amount of money relief in "deserving cases." Medical inadvisability to work, rather than inability to work, would more generally be the basis of sick certificates, when the referee is subject to State control than if he were employed by the carrier.[6] This would allow time for complete recovery without the charge of malingering.

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[6] Rubinow, *loc. cit.* p. 1,013. "The preventive effect of health insurance cannot fully be realized until it is understood that not merely physical disability but medical inadvisability, certified by a responsible medical officer, and subject to rule of reason and review, should be the basis of the sick benefit."

Close Correlation of Health Insurance With State Health Agencies.

From the foregoing considerations it seems clear that a close correlation of the health insurance system with State, municipal, and local health agencies would be affected by the plan outlined and that the disease-preventing efficiency of both would be greatly increased. The medical referees would be selected, appointed, and supervised by the State. The State and district health departments would also be represented in the administration of the health insurance system.

The organized, centrally supervised corps of State medical referees would be a part of the health administration of the State. They would be local health officers with a distinct and definite field for work. In large centers, a division of the labor of the municipal health officers and the health insurance medical officers might be made so as to avoid conflict of duties, while in small industrial towns, where there are no municipal health officers or only part-time officers the health insurance medical officers might be the local health officers. The possible advantages from such an arrangement at once suggest themselves. It is a well-known fact that in many industrial cities and towns the sections occupied by wage-earners, especially the poorly-paid, are most neglected from the standpoint of public health. It is with the conditions in these sections that the medical officer detailed to the insurance funds would be especially concerned. Health conditions in factories, mills, mines, and stores would be an important part of their special field of work. In short, that part of the population which now stands in the greatest need of the most careful, scientific, and close personal health administration would be afforded that administration. The contribution to preventive medicine and to public health work which the intimate knowledge daily gained by the visits of trained sanitarians into the homes of wage-earners could afford, would be almost incalculable. For only by such methods can the tangled mass of disease-causing conditions—such as housing, congestion, insanitary conditions, diet, and the like—be untangled and proper values in the causation of ill-health be definitely assigned to each. In fact, this arrangement would go a long way in attaining one of the ideals for which all health agencies are striving—the presence of a whole-time health officer in every locality.

Conclusions.

The prevention of disease has come to be thoroughly recognized as essentially a public function. No other interpretation can be placed upon health legislation, upon the trend of the development of public health administration, and upon the character of the modern weapons used against disease. If a State health insurance measure, designed to affect a very large proportion of the public, undertakes to be preventive at all, it should expect of the State that the State's own machinery for exercising this function be utilized to its fullest extent, in direct and close co-ordination with the health insurance machinery for distributing the cost of sickness. The question is of the method by which the public health agencies can serve the health insurance system and yet be working in their legitimate field of service—the care and improvement of the public health. It is believed that the plan of co-ordination which has been reviewed in the foregoing pages constitutes a method which is at once feasible and of great advantage not only to the work of preventing disease but to the popularity and efficiency of the health insurance system itself.

COMPULSORY HEALTH INSURANCE FROM THE POINT OF VIEW OF THE GENERAL PRACTITIONER.*

By EDEN V. DELPHEY, M.D.,
NEW YORK CITY.

THE subject of Compulsory Health Insurance is the most important one which has ever come before the medical profession. Its adoption will revolutionize the general practice of medicine so that instead of being an individualist, the physician will be merely a cog in the great medical machine. Are we yet ready to thus lose our professional identity? Will it not be better to make haste slowly and approach the matter with a due consideration of the difficulty of the problem to be solved? Injudicious interference with the body politic is as likely to cause damage as undue interference with the body physical, and the result is much more likely to be a distortion than a development. More social movements have been wrecked on the reef of undue haste than in any other way. Great and desirable social reforms are the result, not the will, of this or that person, but of a gradual system of sane and natural evolution; and thus, and thus only, do we get that careful adjustment to conditions which results in a permanent, stable, and healthy progressive system. All evolution proves this. The development of the highest specimen of the animal kingdom, man, was not completed in a day. What we may decide today to be best, we will know three months from now to be very imperfect; and the same result will obtain in six months and a year later. Therefore it will be much better to delay action on this matter until we have had sufficient time to thoroughly study the subject and to come to certain and definite conclusions as to just what kind of a health insurance law will be best for all concerned; the employee, the employer, the physician, and the State. Although all of these four parties are concerned, the physician is the one who is the most vitally interested and is in a position to lose the most unless a proper law is enacted.

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* Read at the Meeting of the Committee on Economics of the Medical Society of the State of New York, at New York City November 23, 1916.

In order to learn if and to what extent the physicians in this country have studied the subject of Compulsory Health Insurance, the following letter was sent to the secretaries of all of the State Medical Societies in the United States:

My Dear Doctor:

I am preparing a paper on the subject of Health Insurance to be read at a mass meeting of the combined County Medical Societies of the lower part of this state and will be very grateful to you if you will kindly furnish me with the following information:

1. Has the matter of Compulsory, or any other kind of Health Insurance, ever been formally brought before your State Society?
2. Has your State Society ever taken any action, either pro or con, regarding it?
3. Did your State Society instruct its delegates to the American Medical Association—Annual Meeting held at Detroit, June 12-16, 1916—either pro or con regarding Health Insurance?
4. Do you know what is the sentiment of the medical profession in your state regarding Health Insurance?
5. Do you consider the second "Tentative draft" issued by the A. A. L. L. to be just and fair to the medical profession?
6. What do you consider to be the best form of Health Insurance—providing some form of Health Insurance is inevitable?
7. Do you thing that inasmuch as the State must pay the expense eventually, anyway, that it would be better to have the State take over the matter of Health Insurance and insure every man, woman, and child earning under a specified sum per annum, whether they paid any assessments or not, on the same principle that the State furnishes common school education? Would this plan be better, simpler, and cheaper than the various plans so far promulgated?

The replies may be summed up as follows:

1. Yes, 9; no, 23.
2. Favorable, 2; committees, 6; no, 24.
3. No, 32.
4. Favorable, 2; unfavorable, 4; doubtful, 1; sub-judice, 1; don't know, 24.
5. Yes, 3; no, 5; doubtful, 1; don't know, 23.
6. By employer, employee, and State, 2; like compensation insurance, 1; free choice, good compensation, 1; don't know, 28.
7. Yes, 4; no, 3; probably, 2; don't know, 23.

The above indicates that the physicians all over this country have not, except a very few, studied the subject sufficiently to be able to come to any just and proper conclusions regarding the various plans and provisions for incorporation into a health insurance law. We are not yet ready to say just what is the best law to enact and we believe that we should carefully study the subject for some time to come before we can arrive at a proper solution of the problem.

Although the great mass of the general practitioners of medicine are in severe straits as indicated in an editorial in the *New York State Journal of Medicine,* August, 1915, as follows: "Fifty per cent of the general practitioners of medicine of New York City at present find it difficult to meet their current expenses, economize as they will." The truth of this statement may be questioned, but fifteen months have elapsed since its publication and so far I have seen no contradiction of its verity in any of the medical or lay journals. But will the establishment of a Compulsory Health Insurance law improve this condition? Will it not be jumping out of the frying pan into the fire? In my humble opinion, it certainly will be unless the medical profession awakes to the danger which is besetting it and takes proper and adequate measures to protect itself. Since our professional financial life is assailed, we must fight for our rights just as our English brethren did when they were compelled to do so. We must disprove the idea quoted by Mr. A. S. Comyns Carr in his work on National Insurance (Health Insurance): "The community has been accustomed to regard medical men as amiable weaklings in business matters, easily gulled by piteous tales or flattering remarks about the magnanimity of the profession."

This question is *not* an altruistic one. It is not a question of medically looking after the poor, unfortunate, and needy sick; because according to the provisions of the health insurance bills so far proposed, it is a very serious question whether the very poor are not entirely or almost entirely left out of consideration, since there are a large number of persons who will not be able to pay their assessments in order to be entitled to the benefits of the insurance, and the extension for non-payment is but one week for four weeks of paid up assessments. All the health insurance plans so far advocated include within its scope only those wage-earners who earn less than a specified sum per year and who are able to pay their share of the cost of insurance. Such plans include the steady workers, a picked group, and not the ones who most greatly need the insurance. The lot of the casual laborer is grievously hard. Many cannot spare the amount necessary to pay the premiums continuously in order to deserve the benefits because a large number of workingmen's families live upon a very narrow margin. It is an axiom that the less a man earns per day, the fewer days he works. Therefore, those who are unable to pay the assessments on account of previous illness, general incompetency, shiftlessness, alcoholism, or from any other disabling condition, will be left to the tender charity of the general practitioners as heretofore.

If we must have health insurance, to get the best results the State or Federal Government should insure every man, woman and child, whether they pay any part of the cost or not on the same ground and for the same purpose that the State furnishes free schooling, free water, and free fire and police protection. This of course does not include a monetary sick benefit. If that is desired, it can easily be arranged that only those who pay assessments shall be entitled to share therein, but not the others; or the monetary benefits can be left to the beneficial societies now in existence. Universal health insurance is the only way to reach those who are most in need of it. In any case the best results will be obtained by having the sick insurance plan instituted, operated and managed by the State and from a State Fund. Under the Compensation Law, the State Fund is insuring the employers for twenty per cent less than is the Casualty Insurance Companies, and there is no reason why a State Fund cannot insure, under a health insurance law quite, as economically. If necessary, the machinery proposed in some of these various schemes might be used in part.

All the proposed plans for Compulsory Health Insurance institute a middleman between the patient and physician, and the experience of many competent observers is that such an arrangement tends to debase the quality of the medical service as well as the remuneration of the physician who does the work. Unless there is instituted for *collective bargaining by the physician as well as by the patient,* the insurance carrier will try to grind down the panel physician to the lowest possible pecuniary point as is now done in "lodge practice," with the result that the medical service will be very inefficient. The farmer finds it to be to his advantage to take good care of his horses and implements, the mechanic his tools, the manufacturer of his machinery, and nowadays the employer of his employees in order to get the best results and to make the most money. Therefore under any scheme of health insurance whatever and under any condition of medical service, unless the physician is sufficiently compensated so that he can be well-housed, well-clothed, and well-fed he cannot do his best work and the sick insured person will suffer therefrom.

Whether we are in favor of compulsory health insurance, whether we are opposed to it, or whether we insist that we have more time to carefully study the subject in order to determine what is best, not only for ourselves but for the wage-earner also, there are certain fundamental propositions which we should insist that the promoters and promulgators insert in all and every health insurance bill which they introduce into the legislatures as follows:

1. Adequate and proper representation on the commission, councils, and on all other boards having to do with medical matters.

2. The formation of lists or panels of physicians, on which list or panel every legally qualified medical practitioner shall have the right to have his name recorded.

3. The sick insured wage-earner shall have the right to choose any panel physician on any panel to attend and treat him, subject only to the acceptance of the patient by the physician.

4. The insurance carriers shall make all contracts for medical attendance and treatment only with organizations composed of the physicians of one or more panels in an insurance district, to which organization every panel physician must belong.

5. Impartial referees—medical officers—appointed by the Commission and paid by the State, who shall decide when an insured wage-earner is incapacitated by illness, when he has recovered and can return to his work, whether he shall go to a hospital or remain at home, determine the character and efficiency of the medical service, and act as experts to the Commission and Councils.

There are other matters which will come up for determination among which are:

1. The maximum number of patients which any one physician can properly attend and treat.

2. The method of compensation to the physician, whether it shall be by a "capitation fee," a "visitation fee," or a "capitation fee" plus a small "visitation fee" to prevent trivial and unnecessary calls.

3. The arrangement for treatment of the sick wage-earners by specialists, consultants, attendance by nurses, and for laboratory service.

4. The determination of the status and relation of the panel physician to the hospital caring for the sick wage-earners, whether these hospitals now exist or are to be created.

The method of remuneration by "capitation, etc.," will be determined in the contract with each panel, but the others can well be left to the direction of the Commission, as they are largely matters of administration; but the five fundamental propositions must be included in the law. The one which we must especially insist on, for it is the crux of the whole situation, is:

"Collective bargaining by the physician as well as by the patient."

The following is suggested as a working plan for the organization of commissions, councils, etc., for the application of the Compulsory Health Insurance Law in so far as it affects medical men:

1. Temporary commission (4 members) appointed by the Governor of the State: Chairman, representing the State; member, representing the employer; member, representing employee; member, representing the physicians from nominations made by the Medical Society of the State of New York, and who must be a physician in active general practice at the time that the law was enacted.

2. Permanent commission (5 members) appointed by the Governor of the State: Chairman, representing the State; member, representing the employer from nominations made by them; member, representing the employee from nominations made by them; member, representing the physicians from nominations made by panel. The State Commissioner of Health Ex-officio, who shall have a voice and vote in matters of sanitation and public health only.

3. Supreme Council, appointed by the Commission (7 members): Chairman, representing the State; 2 members, representing the employers, from nominations, etc., etc.; 2 members, representing the employees, from nominations, etc., etc.; 2 members, representing the physicians, from nominations, etc., etc.

4. Superior Councils (7 members each) (3 to 10 in the State) appointed by the Commission: Chairman, representing the State; 2 members, representing the employers, from nominations, etc., etc.; 2 members, representing the employees, from nominations, etc., etc.; 2 members, representing the physicians, from nominations, etc., etc.

5. Panels of physicians in each insurance district.

The panel physicians shall organize and may, with the consent of the Commission, perfect a complete State organization in order to weld themselves together for the purpose of better carrying out the purposes of the law.

All purely medical questions decided by the referees may be appealed to the panel, the Superior Council, the Supreme Council in succession, and when and if the decisions of the Supreme Council are approved by the Commission, the result shall be final.

In all disputes between the panel physicians and the insurance carriers, appealed to the Councils and the Commission, the physicians in the Councils and Commission shall each have two votes in order to equalize the voting power of the disputants.

The councils shall have the consideration of the disputes appealed to them; the approval of regulations suggested by the insurance carriers, or the panel physicians.

The Commission shall have general administrative control and direction of the entire enforcement of the law; they shall be appointed for varying lengths of service so that the term of no two of them shall expire at the same time.

Medical Society of the State of New York

NOTES BY THE SECRETARY.

A Message to the Members and County Society Officers.

In the October number of the Journal, I spoke of the desirability of increased membership. I wish to present now a different phase of the membership question, and urge caution in the selection of members. The Constitution states that ample opportunity shall be given to every *reputable* physician to become a member of the Society in the county in which he resides. It is clearly not the intent that unethical, illegal, or undesirable practitioners be brought into affiliation. While strict legal evidence is not always necessary, men of doubtful reputation or of questionable conduct, should be accepted only when suspicion has been removed. Unethical treatment of brother practitioners should count heavily against an applicant. There are a few men in the world so obnoxious in character or bearing that their presence would deter others from becoming members of a society. Questions of this character may properly be considered in the acceptance of applicants, but personal dislikes should not be permitted to bar their admission.

Attention is called to the fact that legally licensed physicians only are eligible for membership in the county and State societies. A surprising number are admitted to the county societies each year who are not registered in the county clerk's office. Under the law of the State such physicians are not legal practitioners and are liable at any time to prosecution for illegal practice. Most of these may become legal practitioners by registration, but there are a certain number who have not passed the State examination. Registration with a board of health, as required in some of the larger cities, is not the registration required by law to make a physican a legal practitioner. It is not safe to admit any applicant for membership whatever without first verifying his status.

The first step to be taken is to consult the Directory. If the name appears there, the applicant is a legal practitioner for upon that point the Directory is correct. Its lists are lists of physicians legalized to practice. If the name does not appear in the Directory, the applicant is a subject for investigation. He may have moved into the vicinity or may have qualified after the Directory went to press. There is possibility, also, that he may have been overlooked, though that is rare.

If the name is not in the Directory the lists of the county clerk's office should be investigated. If the name is not found there, the applicant is not eligible for membership. The State Secretary is in touch with every county clerk's office in the State as well as the State Education Department, and thus prevents the admission of many ineligible members. The duty rests primarily, however, with the county secretary. He should secure annually from the clerk of his county the authentic list of practitioners and preserve them in his records.

The Directory is the strongest single safeguard possessed by the State of New York against unqualified practitioners and by the medical profession against unfair competition. The quacks and unlicensed practitioners are more alive to this fact than the average physician. They well know that their names are not on that list and in every locality of the State it is there to confront them. Some physician in the vicinity may have the inspiration to look up their standing. If their names are not found, investigation may follow which may reveal their fraudulent character and drive them from the community. The Directory lists are a constant menace to the fraudulent and unqualified practitioner.

F. M. C.

THE UTICA MEETING.

The 1917 meeting of the Medical Society of the State of New York will be held in Utica during the week of April 23d. The work of preparation has been actively carried on since June and is advanced as far as it is possible at this time. The Committee is most vigorous and efficient and is ambitious to make the meeting a memorable one. It consists of Dr. Thomas H. Farrell, Chairman, and Drs. Willis E. Ford, Morris J. Davies, Fred J. Dougles, George M. Fisher, Earl D. Fuller, Frederick M. Miller, and William B. Roemer. The headquarters hotel will be the Hotel Utica.

The commercial exhibit and the bureaus of registration and information and many of the sections will be placed in the Armory, while the remaining sections will be placed in close proximity. The armory group is a scant ten minutes walk from the hotel center.

The general meeting will be held on Tuesday evening instead of Tuesday morning as in former years. This will give Monday evening and all of Tuesday forenoon to the House of Delegates, which will meet in the Hotel Utica. The sections will meet on Tuesday afternoon, Wednesday forenoon and afternoon and Thursday morning. The Council will meet at 12 o'clock on Thursday.

Utica is the central city of the State and is accessible by rail from every direction. The State roads converge upon it from every locality. Those wishing to come by automobile for a single day will find abundant parking facilities. Those who wish to make a longer stay will find the garages of Utica, like its hotels, ample in capacity and of the first class.

Complete details of the meetings, hotels, and transportation facilities will be given in a later number of the JOURNAL.

PRIZE ESSAYS.

Two prizes for essays are to be awarded this year. The Merritt H. Cash Prize Fund was established many years ago. The prize is offered only once in two years.

The Lucien Howe Prize Fund was established by Dr. Howe of Buffalo in 1906. A prize of one hundred dollars will be offered from this fund this year, "for the best original contribution to our knowledge of some branch of surgery, preferably of ophthalmology." The essays for these prizes must be in the hands of the Chairman of the Committee not later than March 24, 1917. More complete details will be given in the January number. Information may be obtained by addressing Dr. Albert Vander Veer, Chairman, 28 Eagle Street, Albany, N. Y.

AMERICAN MEDICAL ASSOCIATION.

The 1917 meeting of the American Medical Association will be held in New York City during the week of June 4.

The Trustees of the Association have appointed Dr. Wendell C. Phillips, Chairman, Dr. Floyd M. Crandall, Secretary, and Dr. Alexander Lambert, Treasurer, to head the local Committee of Arrangements.

New York is a large city, but it may be positively stated that the meetings will be concentrated within a very small area. Hotels of every type are located within this area.

Preliminary arrangements have already been made and the meeting promises to be a large and successful one. More detailed information will be given in January. Complete information will be given in the *Journal* of the American Medical Association in a number devoted to the New York meeting, which will appear in the winter.

MEETING OF THE COMMITTEE ON MEDICAL ECONOMICS.

NEW YORK ACADEMY OF MEDICINE

Thursday Evening, November 23, 1916.

Dr. SAMUEL J. KOPETZKY, Chairman: This meeting is called for the consideration of Compulsory Health Insurance. The matter has been, as you know, before the Legislatures of this and other States for the last few years. The regularly organized medical profession of this state, through the Committee on Medical Economics, thought it wise to present it to the profession for its education and to elicit a discussion on *medical provisions of the proposed act.* It is not my purpose to deliver an address upon this subject to you. The scheme is outlined in the booklets published by the A. A. L. L. under date of November, 1916. In order the better to understand the proposition, I shall take just so much of your time as briefly will outline it. On this chart, there is drawn an outline of this scheme. The insured employees, the employers, represented by the trade unions, the establishment funds, the local funds, fraternal funds and so forth, have their governing body in the local committee representing employees and employers. This fund again has a still more central body, a local board of directors. These directors are concerned with the provisions of the carriers, namely those who furnish the medical and surgical attendance and the other benefits under the act, and also the cash benefits. There comes between this board of directors and health insurance committee a social advisory council on which there are elected employee directors and elected employer directors; and then the central body, the health insurance commission.

Our objections to the bill last year were that the public health was not conserved; that it permitted all the evils of the so-called lodge practice and that there was no supervision over the character of services rendered to the insured. These objections have now been met. The medical profession has—in the provisions of the drafted bill—adequate representation upon each and every administrative board. We find that the physicians are divided into two classes, one class—the panel doctors who diagnose and treat the sick; another class, a group of physicians in the employ of the carriers and representing the funds and their benefits and who certify to the disability and issue the grants for the cash benefits. In addition, there are of course panels of specialists, dentists, etc., and there are groups of hospitals and dispensaries which will do work under this act. All these groups of medical men elect representatives to a local medical committee, upon which committee you find the panel physician electing a representative; you find the hospital attendants electing a representative; and you find the local health officer, or health department sending a representative. Thus each group, practicing under this act, has adequate representation which is immediate and local. The bill provides that all measures affecting the local group of physicians, before it becomes effective and before it comes in force. must receive the approval of these groups of representatives, namely the *local medical committee,* and therefore it leaves in the hands of the local medical committee, the final stamp of approval before any act affecting these groups.

The questions of dispute, in view of the experience abroad becomes one of great importance, and therefore the lines of appeal are shown on this chart by the diagonal lines. If there be a dispute between the medical officer and the fund, the panel physician, the specialist or the hospital, the first appeal then comes to their own representatives, the locally elected Medical Committee. Should an unforeseen circumstance arise that is not satisfactory, a second appeal goes to the Arbitration Committee which has upon it one appointed by the Board, because they are interested, one appointed by the Local Committee, and one appointed (a neutral presumably), by the County Judge, or in the City of New York by a Supreme Court Judge. Therefore, in the Second Court of Appeals or the Arbitration Committee, medicine is adequately represented.

The State Insurance Commission has upon it one physician and two other members, one of whom shall be its chairman. The Commission, under the Act as drafted tentatively, shall not promulgate any laws, any regulations or any administrative act without the consent and without the study of the State Medical Advisory Board; and there, too, the State Department of Health has its representative; and there are also ten others elected by the State Medical Society. In this scheme then, the medical profession is adequately represented. No provision either of the central body or of the local men who do the work becomes effective according to the provisions unless passed upon by their own elected representatives.

The other question that has been raised is that of *collective bargaining,* which is provided for; inasmuch as the medical panels make group contracts; and no individual bidding is possible without the consent of the Local Medical Committee; and if, in the judgment of the Local Medical Committee such a procedure should at some future time become justifiable, the profession will have itself to blame if it goes into effect. The public is protected by having the medical officer of the fund supervise the character of medical services rendered. The physician is protected inasmuch as there is a limitation, based upon previous experience, on the number of persons who may be upon his individual list. His popularity is encouraged by permitting a free choice among the doctors who work on the panels on the part of the insured. The Bill is before you now for consideration and for discussion.

Dr. B. S. Warren Read a Paper on Health Insurance, Its Relations to Preventive Medicine.*

Mr. Hugh Frayne, who was on the program to represent the labor man's point of view as expressed by the American Federation of Labor, and by the National Civic Federation, was unable to be present. It is only just that his point of view be presented before the House. The labor man's point of view as represented by the National Civic Federation and the American Federation of Labor, WE CAN CONSIDER AS OPPOSED TO COMPULSORY HEALTH INSURANCE.

Dr. Eden V. Delphey, Read a Paper on the General Medical Practitioner's Point of View.†

Mr. Miles M. Dawson: I think I ought to preface that which I have to say to you, which, by the way, is on the *Object and the Advantages of Health Insurance,* by saying that the responsibility for the name "Health Insurance" is one that I fear I will have to accept. It did not have quite the origin which Dr. Warren naturally inferred. Instead of using the term "Sickness Insurance" which in our country has come to be connected through the issuance of sickness insurance policies by accident insurance companies with insurance against disease only. Health Insurance is intended to be against everything which disables a man, and in regard to workmen who are covered by the Workmen's Compensation Act it is intended to cover all kinds of disabilities arising from any cause excepting those accidents and disabilities governed by the Workmen's Compensation Act.

As this form of insurance is intended to cover as I have stated all the ways in which a man becomes disabled with the bare exception of those already covered by Workmen's Compensation Laws, naturally the better name to select would have been *Health Insurance.* I do not know that these words of introduction would have so much interest to you if it were not that they have direct reference to what the advantages of health insurance are. While this is a body of physicians, I take it that you will first be interested to learn in the very fewest possible words what the advantages purport to be to the employees who would thus be insured. The suggestion has been made by one of the preceding speakers, a very interesting suggestion indeed, that this form of insurance should be extended to the entire population. It has not proved practicable in any country in the world up to the present time to levy a tax for the purpose of maintaining a plan of this sort upon others than wage earners and to collect the tax; and if it is to be a contributory form it will hardly be practical for us to introduce it except for wage earners and salary earners in our own country. I might stop at this point to say to you I am not one of those who think that our country is a poor country or one that cannot do things as well as they do in other countries. I quite believe we can always do the things which they have done well in other countries, as well if not better. But I want to put one little limitation upon the statement or rather one little corollary, it is not a limitation. I am always very suspicious when it is proposed that we attempt doing things in our country which have never been undertaken at all anywhere else and the result of which appears very doubtful; or which have been undertaken elsewhere and which have failed, I am not sure we cannot do them, but I suspect we cannot. Now the thing which has been done successfully through more than a quarter of a century in other countries is the thing which is perhaps in the bill that was drawn by the Committee of which I have the honor to be a member. That Committee was composed entirely of persons very much interested in this subject and in large part by persons who had devoted many years to the careful study of its different phases. Its work extended over more than two years, before it put out its first draft of a proposed possible bill for consideration and discussion. The draft which is now before you is the third, including a good many amendments made on account of this discussion and the suggestions resulting from the discussion. We have no feeling that it cannot be improved. We not only think it can be improved but we hope that it will. The advantages, if this bill becomes a law are these: Instead of sick employees feeling compelled, whenever illness comes to them to resort to patent medicines or shamefacedly to run off to the dispensary and actually sponge their way, because they do not feel equal under our present disorganized system of medical attendance, to provide the medical attention they should have. Every insured person and his family under this Health Insurance Law will be entitled to apply for medical attendance, for medicines prescribed through the regular medical practitioners of the country, to nursing if it be required, to hospital attendance if that be required and the attention of specialists if that be necessary. In other words the door to the precise thing which the medical profession has been struggling to bring about in this country, namely the doing away with quackery and patent medicines and the use of free dispensaries by people who are willing and ought to pay—will be open. Now this is one of the tremendous advantages for these workers to start with, but it is not the only advantage. In addition to that advantage this Health Insurance Law will bring to them whenever they are taken ill, after the first week of that illness, a sum of money equal to two-thirds of the wages they are losing, and this will be continued as long as period as illnesses continue, which have not become permanent disabilities. That is not the only advantage which will be given to the persons insured. I have mentioned the medical attendance of the family. That includes also the lying-in of the wife so that the child will be brought into the world not under the evil conditions which you know so very frequently now attend childbirth, but under the best conditions, under the well organized medical system which we will be able to supply. Now these are very real advantages to the employee. For these advantages, he is expected to pay two-fifths of the entire cost. At the present time he pays all the entire cost, and he pays it in the most expensive way, not only for himself but for you and for me and for everybody. He pays it by the starvation of a large proportion of the medical profession who have devoted themselves for long years to prepare themselves to practice the profession. He pays it by all sorts of neglect, and we pay it again by the pauperization of those families.

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* For paper, see page 597.

† For paper, see page 601.

Under this system of health insurance it has been found in Germany that the average duration of the life of men was extended from thirty-six years to forty-eight, twelve years more almost, all of it or a very large part of it in the working years of life, to be used by men who have been trained to be of service to themselves, their families, the community and the state.

These are very solid advantages to the employer. The advantage to the employer is that he has not men working for him who are not really in a condition to work, the advantage that they are more promptly healed and brought back to their work in better condition to do it, and the advantage that their families are not pauperized.

By the way, I suggested that the British Trade Congress send a committee over to Germany to look into certain phases of this matter, which was done; and that was before they passed the Health Insurance Act in Great Britain, and they reported back "There Are No Slums in Germany."

I think all the gentlemen within the sound of my voice would agree that that would be a great thing for the whole community, the employers included, if we could say it of our own city, our own State and our own nation; and the people who have brought it about say that these things have been the things which chiefly have brought it about.

The remark was made by one of my predecessors as I understood him, that the physician had the most vital interest in this matter. Except as the physician has a very vital interest indeed in doing his work well and for the benefit of those whom he serves I think that is not the case. The physician has a very great interest in this matter. He has the interest of being given the part which has been denied him in the past, of being of the very greatest possible service to mankind, and it is only by doing that service that he ever deserves to be paid.

Do the gentlemen within the sound of my voice, gathered in this historic place, looked down upon by those who distinguished themselves in the service of humanity in this profession, have in their hearts for one single moment any fear that if greater opportunity of service is given, there will not be greater remuneration for the service. Has such a thing ever happened in the history of the world?

There never was great service without great reward. The medical profession of Great Britain have not suffered by the introduction of health insurance. The average incomes of the individual physicians who were at work before health insurance was introduced are materially larger than they were before, and they have much greater and more active means of serving the people of Great Britain. Now the same is true of Germany. I do not say that there will not be many things to adjust. I do not mean to say that there is not plenty of opportunity for hard work in solving the problems that arise under a great movement like this, under all the changes that are necessarily involved in it, but I do say that you can hang absolutely to one proposition, if you are given greater and more splendid opportunities for service, your reward will be sure. And it will come.

Reference was made by one of the speakers to a statement made at Albany by the legal gentleman upon the Social Insurance Committee. I plead guilty to being that gentleman. I did state openly there as I state again, that no system of Health Insurance would be introduced, in my opinion and certainly none would have my approval, which did not provide for panel physicians and for free choice among physicians. I am not correctly quoted, although I am sure the gentleman did not mean to misquote, if he meant to signify that I gave either on behalf of the committee or even on my own behalf any promise that that would be the only system; certainly I do not think it ought to be. I am sure that nearly all of you will agree that the work of the last twenty-five years in the medical profession has shown clearly that we do not want any absolutely hide-bound method of dealing with the thing. We have not yet arrived certainly at the best way of doing it. For instance, we are already testing out in John Hopkins and many other places the group system of physicians as the Mayos are doing at Rochester, and a great many of us are inclined to think that much of value has been accomplished in that way. We do not want to close the door to that. We do not want to close the door to experimenting with all good systems, but that does mean, notwithstanding that in every district in which Health Insurance is introduced in the United States, it should carry with it absolutely necessarily the panel system under which those who are being treated may themselves select the physicians who are to treat them.

I do not wish, however, to sit down without saying one thing concerning the very admirable address presented by Wr. Warren. With very much of it I find myself in great sympathy. I am confident that as a purely business matter, that the introduction of the State Public Health Physician as the absolute arbiter of what shall be done concerning the payment of claims would be a very serious mistake. In the first place, being under the Civil Service Law for life and good behavior, I should be very much afraid to have him employed in my office unless I could discharge him, I could not order him to do the work that needed to be done. The difficulty we have found among a great many public officers of whom Dr. Warren is *not one* is that they do not really care to do much work. In this Health Insurance we have got to have a medical officer of each of these funds who is on the job. It may be that he will not always do the work so well as the State Public Health Officer might do it if he were willing to work. That is possible. I am not sure that it would be true in all cases. I am pretty sure it would not. But he will do the work because, if he does not do it, he will lose his job, and it is more important that somebody be on hand promptly to examine the man who claims to be sick and entitled to benefits and that somebody be on hand to examine him again and several times again to determine whether he has reached the point where he ought to be able to go to work, than it is that we have some method of co-ordinating it with the public health through that particular machinery. If some other way can be devised which does not take away from these funds which must be run as business institutions the control over their own medical officers, I am very sure that it would meet with approval not merely of myself but of the entire committee and practically of the entire country.

Mr. Lee K. Frankel: This subject is entirely too broad to attempt to discuss it in fifteen minutes. I shall have to limit myself to one side of it, and that is the medical side. I am impressed, nevertheless, by the caution that was given to you here earlier in the evening by one of your members as to the great necessity of going rather slowly in what is bound to be a rather momentous problem in the United States. I do know one thing, what is and ought to be the attitude of the medical profession. Mr. Dawson, I feel quite sure did not mean what he said when speaking of the plan that has been proposed here in the United States as having been in successful operation in Germany for more than a quarter of a century. If you men are at all conversant with the medical literature of Germany, if you have followed the development of social insurance in Germany within the last twenty-five years, you will know, as I do, and as Mr. Dawson undoubtedly does, that there probably is not a more unpleasant and ignominious conflict in the whole history of social development in Germany than the conflict that has been going on between the medical profession and the Krankenkasse in Germany. A conflict the end of which is not yet. It has not been settled. There is no likelihood that I see of its immediate settlement and I think the reason for it is the absolute misunderstanding of the principles of insurance in the whole system of German legislation, particularly with respect to sickness insurance.

I want to take the few minutes that I have been given to elaborate that one thing. It is the primary thing to my mind that we have to consider in the United States. If the physician is to be recognized properly, then his work has got to be dignified. He has got to be given a task which is not constantly going to subject him to temptation, and that is what has been happening to him for thirty years in Germany; and that is the reason he has risen up in arms, because it has not been merely his professional standing that has been at stake, but it has also been his self-respect and his sense of decency that has been at stake. The German legislation has required of a physician to be two things, to be plaintiff and to be defendant, to be the advocate both for the insured and for the insurance carrier. He has constantly been subjected to that peculiar position of being required to act for the so-called carrier, and that term is, by the way, a very bad one, the insurer would be very much better, that is what it means, that he has to be the advocate for the carrier, and at the same time constantly to be subjected by the insured to certify him for benefits when the physician himself knew he was not entitled to them. Yet it has meant his livelihood, it has meant his practice, it has meant obtaining and holding the good will of the people for whom he was acting; and I am quite confident that if one were to carefully study the situation as it exists in Germany, he would have found that this conflict, this thing of doctors going on strike as has been shown in Leipsic and other communities; the organized efforts to defeat the ends of legislation as was shown by German fraternities of medical men was because the physician had been placed in that anomalous position of being required to do two things. We have to recognize that in the United States. The attempt has been made in the last draft of this bill. We must absolutely divorce in any system of sickness or health insurance in this country, the carrier that pays the sick benefits, from the carrier that is going to give medical care. Now it is immaterial what carrier you use. Probably I will be criticised for this, probably I shall be spoken of as an advocate of insurance companies, or fraternal orders, call them what you will. Very well, I will take that odium. It is immaterial whether they are establishment funds or company funds or companies or whatever they may be. The point I raise is that the carrier shall do one thing and that is to pay the cash indemnity, because that is the only phase of insurance that there is in this country. Insurance is indemnity. It is replacement of loss. In this particular instance it is the replacement of loss of wages due to illness. That is the only interest that insurance has in it. But when we come to the question of medical care, we are today in the United States in a position that is far beyond anything contemplated in any proposed legislation. This legislation thinks of sickness. This legislation gives medical care when people are ill. It limits it to twenty-six weeks. Gentlemen, we do not want to limit medical care in the United States to twenty-six weeks. We do not want to tell a man when he is sick that he has to stop having medical care and we want to do very much more than that. Take the whole historical approach: In Germany, insurance came before preventative medicine. Koch's bacillus came a year or two later. Preventative medicine in Germany has been the handmaid of the social insurance scheme. In the United States we want to make the insurance scheme the handmaiden of preventative medicine. It is a much bigger thing, a much larger thing. In the United States we have been carrying on in the last ten or twenty years a campaign for the prevention of disease, in the eradication of disease through the co-operation of you men, the like of which is not found in Europe today, and we have done that without any insurance scheme.

I say to you the scheme we have to develop here is *one that divorces the purely compensatory practice of paying indemnity for wages from the larger and bigger things that we are trying out in the United States through the American Medical Association, through the American Public Health Association, through the Publice Health Service.* This thought of caring for men through you people, not merely when they are sick, but when they are well, to look after them, gives them medical examination from time to time, and wipes out the contagious and communicable diseases. I refrain from suggesting to you men that greater service will mean for you greater remuneration. I am not a medical man, and it is the one regret of my life that I am not, but I have always had the idea of what the medical profession stands for, and as I have studied it, I have never yet found that the doctor was after pay; he has a bigger, broader, higher and nobler conception of what his profession stands for. Gentlemen, that is the point of view you have to take. I believe you are facing a crisis. I believe you are seeing ahead of you a complete change in the profession of the practice of medicine; but I am quite convinced that you men are going to meet the situation as it arises, and it has arisen here in advance of Europe. The whole fight in Europe is one thing. A doctor of Germany said to me a few years ago, and he is the greatest authority on social insurance in the world, "we will never solve this problem in Germany until the State employs its own physicians." I am not here to argue that. That is a professional matter, and that matter rests in your hands, but I believe that the time is coming when you are going to be called upon in this country to solve this problem, not from the standpoint purely of selfish interests but from the larger viewpoint that the medical profession has always held, the welfare of the community and the welfare of patients. We are not in a position to go ahead of the subject of health insurance. If nothing else has brought that out, this meeting has. We have got to get together. There are many interests to be considered. There is the manufacturer, and he has been spoken of, and there are the people and they have to be considered. We have heard of him through the labor man. To my mind the one thing for us to do today is to forego acrimony, forego any hard feeling, forego any irritation that may have been created, and get together as men and women of sense and understanding ought to get together and thresh this thing out and present a bill before legislatures, that is not like this one that is admittedly half baked and unfinished. When I say that, I am quoting Dr. Andrews who made that remark in Cincinnati a few weeks ago when he admitted it was unfinished and incomplete, and it is in its third drift, and yet it is in the Legislature of this State and of Massachusetts. Let us get together and forego these differences, let us get together as thinking men, as honest men, as men and women having the welfare of the people at heart, and draft a bill that will really mean something for the people of the United States.

Dr. Alexander Lambert: Mr. Chairman and Gentlemen: Tonight is the first time in four months that I have been back here at work. I have been unable to be with the Committee and with Dr. Kopetzky in working out the details that have been put upon the chart, but, however, there are other things than those many of which will bear discussion. Mr. Frankel is not a man who loses an opportunity or fails to see one, and I am sorry to see him holding back when here is his opportunity to get together and here is a scheme that needs development. However that, I think is but a temporary thing. I very much doubt that the scheme proposed by Dr. Warren can be put into execution at the present time. It means that *the control of medicine in the United States be given over to the Health Department and to the Public Health Service.* That is not possible to do. It is said that the general practitioner is not competent to judge matters of preventive medicine and of health. True, but the present health officers as we know them are not competent to be referees in general medical and surgical matters. Each man is not fitted for the other's job. There is no question but what there must be a connection and a blending of preventative medicine and a blending of the Health Department and of public health in any insurance scheme or any scheme by which the welfare and health of a community is to be advanced. It makes no difference how you guard that, whether by insurance or otherwise. It is an absolute necessary exhibition and a necessary promulgation of the force of the police power of the State that cannot be omitted. Whether the scheme on the chart is sufficient or not, that the Health Department have representatives on the local committee and on the Advisory Board I do not know; but certainly it is a correct endeavor to blend what is necessary and blend it in a way that will bring about the desired result without friction.

As to the medical referees. The referees here are evidently under the local funds and paid by the fund, while we may not wish to copy exactly the things abroad, and we certainly do not, it is an unwise man that cannot take advantage of another man's mistake and learn from that. Germany has made the mistake that Mr. Frankel has spoken of, and the justice of the complaint is shown by the fact that in over 90 per cent of their quarrels and fights when the issue has come the doctors have won. England started to make the same mistake when putting her scheme into operation and it was through the vigorous struggle by the doctor to come out from the position in which the German physician still found himself, that the antagonism arose. The English law is more just to the doctor but it does not work well in giving the proper care to the people, and that is due I think to the basis on which the funds are gathered and also the basis on which the doctor is paid. Capitation, whether it be in lodge practice or social insurance is so ingrown with evil that you cannot eradicate it. Some other scheme than capitation will have to be found to prevent those evils occurring in any scheme that you put forward.

As to the medical referee in England it has been found that they are a necessity, and they are gradually coming to the condition where they are retained. It seems to me that the medical referee is a state officer. He is certainly an executive officer. He should not be in the position that he is hired by the fund if the fund represents only employee, or only employer, or is a representative of the employers. In the scheme here, however, the funds represent equally the employer and employee, hence the referee can remain impartial. He should be a man that is entirely impartial and whose impartiality shall not be impugned even in thought. If he is paid by the funds, the question will come up in the minds of the patient whether he is driving him back to work too soon, whether or not he is in some collusion with the sick funds and therefore there will be antagonism which will tend to increase malingering and simulation. If he is paid as part of the executive work of the state he loses that suspicion. He is suspected of collusion with no one. He can then be also empowered with a certain amount of police power without being a full health officer, but in some way to get the ideal position he must be an executive officer free from the funds or free from the payment of any group.

I did not mean that Dr. Warren meaningly twisted a remark I had made that there were three antagonistic forces in any insurance scheme. There are three groups whose rights are antagonistic, but whose duties are not conflicting. Under any just law those duties harmonize and the antagonisms do not develop. If there be injustice in the law, and there is always friction between the rights of one group against the other, the carrier will demand more of the doctor than the doctor can give and the doctor resents it. The patient will demand more than the doctor can give and the doctor resents it. The doctor will demand remuneration and his rights in other ways which will seem to interfere with the rights and privileges of the other two and they will resent it. There is the antagonism, but if there is a just law and their rights are safeguarded then their duties blend so that the antagonism ceases. They are antagonistic in their rights, not in their duties. Those are the parts that are in the fundamental law of the state and are hard to change. In all schemes of insurance abroad the payment of the physician is left to regulations. Regulations are matters of executive work and executive commands of the Commission and are therefore easy to change without the necessity of going to the legislature to change the fundamental law. Such things as that therefore should be left to the regulations.

Dr. Emil Altman: At the outset I wish to say that there is not one scheme that we can present now which can be universally applied. We know that to safeguard our property or our property rights this country has sought to establish a bill called a tariff which will satisfy everybody. So long as Congress has been in session from the first inception, at a liberal payment of $7,500 per annum, these three hundred and sixty odd gentlemen have up to date not arrived at a solution. So that you see, that practically beginning a new subject we cannot arrive at a solution to please everybody. There is just one thing to be kept in sight and that is the greatest good for the greatest number. Now I do not say that medicine is entirely altruistic, but it certainly is an altruistic profession. As regards the speakers and their proposals. I wish to take issue with Dr. Warren in the matter that the public health officials have a monopoly on sanitation. There is no monopoly on any branch in medicine given to any group. I should be ashamed for this assemblage if ninety-nine and nine-tenths per cent of the men present here tonight could not with a little training in that matter, be good sanitary officers. They could be and are good sanitary officers if they will pay attention to sanitation. They know the cause of disease and they know how to prevent it, and that is all. As to the sanitary officer being a more competent officer than any one of us, I will give you an illustration of what I have heard across the river from one of the gentlemen who happens to be a public health officer. He is in the employ of the Department of Health. Additional work has been put on them to examine the officials employed in the Health Department. You should have heard the calamity howl that that man put up because the men of the department had to examine the working people in the department without extra compensation. Now if that is the spirit and the altruistic and public spirit of the public health officer, you will excuse me from selecting him for the poor working class.

Dr. William S. Gottheil: It is the greatest pity in the world that Mr. Frayne was not here tonight because while we are all intensely interested in the medical details, and want to get a square deal for the doctor, I think the fundamental question as to whether the people want a bill of this kind or not is one that interests us still more. If the labor interests and interests that control votes do not want a Compulsory Health Bill, then the gentlemen of the A. A. L. L. have given the administration a great deal of vicious trouble. Some of us have given a great deal of time and care and attention to these medical details and we would like to know whether they want the bill or not. The object is to see that if a Health Insurance Bill is passed, the doctors get decent treatment. They are going to do decent work and they are going to do it without the supervision of the Local Health Insurance Officers or the State Insurance Officers, and I am not much interested in the individual schemes so long as whatever is selected is an equitable one. I do not know whether capitation or visitation is the desirable basis. We have not decided that, but I do know that the demands or rather the postulates which Dr. Delphey has stated in his paper are the ones that we must stand by. They are in any bill that is going to be presented to the Legislature, if it is to have the support of the Legislature, because we do not propose to push this or any other. The postulates, those of proper representation on the committees, free choice of doctors, formation of panels, and especially the collective bargaining which to my mind is at the bottom of anything like a just agreement between insurers and the physicians.

Mr. Alfred E. Ommen: I am just going to present this question, not from the standpoint of the medical man nor the lawyer, but rather from the standpoint of the public which does not seem to be on the program here tonight. It impresses me as a party that has a great deal of interest in this country and ought to have something to say about it. The labor point of view in this matter is that they are perfectly willing to go into it provided that the employer pays it. As far as they are concerned they do not want to pay a cent. I have a great deal of respect for the medical profession. It seems to me that the proposition involved in this whole thing results in State Socialism. That is all. There is no other tendency but that, and you must remember that in the City of New York today there are thirty-two hundred persons, half the doctors of this city or two-fifths of them who do nothing but stir up these questions; they get from six hundred a year to ten thousand a year; year in and year out they stir up these questions because they make a living out of them. They are known as *professional social workers* and they are at Albany all the time. They are teaching you how you shall wash and how you shall shave and how you shall cut your hair. We have laws in this State of every kind, character and description and it seems to me that we are getting regulated in our daily lives wholly and completely according to law; let us have again the liberty of the individual and develop his life. Let the young doctor start slow and work himself up so that he knows something. Let him get into a career that amounts to something and develop himself, the same as the grand men that you have around the wall here, instead of being a salaried employee as you might be under these bills.

Mr. Chamberlain: I represent only myself and the amount of effort which I have put into the study of social insurance both here and abroad. I want to begin, however, by saying that I am not an extreme individualist or revolutionist.

I also want to say that I did not get here early enough to get the benefit of the first addresses, but I did hear Dr. Gottheil's statement and I have this criticism to make that I think the doctors in taking up this subject of social insurance are taking it up very seriously, and in looking out for their interest and also for the interest of the patients whom they will some day be called upon to treat under social insurance that they are not showing a lack of judgment, but they are showing very great intelligence. Dr. Gottheil I think was entirely wrong in thinking that this is not a subject that is going to very soon be a legislative subject. There is a very rapidly increasing amount of interest being taken not only by the medical profession, but by the laboring men in the unions and out of the unions and by the employers. Only a very short time ago I had the pleasure of looking at a report gotten up by a committee of the American Manufacturers' Association, which I do not think anybody will accuse of being a wildly socialistic body, at least my experience with them has been quite the contrary, and that organization, or rather the committee of the organization which has studied the subject rather carefully said that social insurance, sickness insurance would probably come and that it should be compulsory; that it is one of those things that come up in the line of every business man like tariff and free trade, and you had better be prepared to meet it before it strikes you. I also heard a report read at a meeting of the American Electric Railways Association, in which pretty much the same attitude was taken. I need not speak in this assemblage of the interest which the medical men have taken. I need not speak of the very general realization on the part of a great many medical men that there is a very great change probably coming over treatment, that would be going quite beyond my depth, but I do want to call your attention to the fact that almost everywhere where I have been almost all of the medical men that I have had an opportunity to talk with, and many of them are insurance doctors, have agreed that something of this sort is coming. Not very long ago I addressed a meeting of insurance officers in Boston on this subject of Health Insurance generally and after the meeting the President of Casualty Underwriters Association came around and said, "You are on the right track, this is going to come, only that you a little premature; about 1920 this matter will be enacted into law." If you get that kind of admission from the very group of men whom you would suppose would be most opposed to it, it certainly looks to me that a group of men who have to get in under it such as the doctors, should study the matter very carefully and not simply fight against it. Furthermore, in regard to the right of an individual to be sick as much as he please, to take as much patent medicine as he choses to stuff into himself, I would like to say that that was an argument which was made very frequently against the Workmen's Compensation Act. It was said if a man wants to get hurt, why cannot he get hurt. What business was it to the employers if a man had been earning wages that were supposed to be reasonable wages at least he got the current wages in the industry and that he had not laid up enough to take care of himself.

Dr. Blumensohn: In reference to what Dr. Warren said I think that our various health agencies are doing their work very well. I do not believe that this bill has anything to do with it. As far as the State paying for this thing goes, I do not think it is fair. I think that while only a certain group of people are insured everybody should not pay for it. It is a different proposition with the schools and the fire department and so on where everybody receives protection. As far as the people wanting it goes, I guess we have all noticed that they do want it in this way. For instance when a man gets hurt he knows he is insured, but if he gets sick for instance from the inhalation of fumes or dust or something like that, he always asks his doctor, am I insured against that and we say no, and yet he takes it up with his employer and with the insurance company, and they are in doubt about it. It seems that the demand is there on all sides. They do not see why the line should be drawn at an accident. I think we have all had that experience with our patients. If one man, Mr. Holland or whoever it was, or a certain organization says the people do not want it, I do not think they can judge. I think we can judge it better from among our patients. As far as the referees go, of course that is a mighty important thing; as Mr. Frankel said it is an embarrassing thing to treat a man and then say whether he will get benefits or not. I think we all feel that it is an embarrassing position and should be considered with due care in all its relations to the insured and insurer.

Dr. Tannenbaum: Compulsory Health Insurance is absolutely sure to come. If it does not come now it will come later, but come it will. We have been told that the labor organizations were opposed to compulsory health insurance. There are two reasons for this position: One reason is that the laborer is now getting free medical service in the dispensaries and in the lodges from the lodge doctor and the hospitals. In other words he finds himself a ready victim to his inclination to take charity. He is not pauperized because he has not yet risen to that high sense of honor which would forbid him taking something that he is not entitled to; and so long as the physicians are so altruistic and so heedless of their own interest as to render the services the laborer will not pay for the services. The second reason why he is opposed to this kind of insurance, is that is the A. A. L. L. have provided insurance companies operating for profit, and when anyone operates for profit he means his own profit and not the other person's. Even under the health insurance, the doctor will remain a doctor, nay, more, he will be a real doctor, he will be a true doctor of preventive medicine. He will become the instrument not only of the laborer but the instrument of the State. You will be a humanitarian in the true sense of the word. Why do I stand for compulsory health insurance? Because the practice of medicine during the past two centuries or more has become commercialized and because we are idealistic and opposed to business, we want to take the practice of medicine away from the commercial interests; and we know that all sorts of abuses have crept into the practice of medicine, the lodge evil and a thousand other things. Christian Science, chiropractors and what not, but as soon as the laborer feels he is paying for medical services, all these fakirs and all these fads will vanish off the earth. It will not be now or tomorrow. We may not live to see it, but I tell you it will come.

There are several things that compulsory health insurance will secure, first real medical service instead of quackery; second, no delay in getting medical treatment, because you can have it as soon as you want it; third, it will give every person proper treatment. Every man who is sick will report himself to the department having the matter in charge, and the doctor will be immediately sent to him, and if that patient needs the services of a specialist, a specialist will be supplied to him. It will give not only prompt medical service, but the very best medical service because if the State will adequately compensate physicians, none but the best brains will apply and the State can supervise it so as to have none but the very best because the people are willing to pay for the best. It will supply persons with necessary surgical service; it will not fill them up with worthless medicines. It will be in the interest of prevention. You know that the insurance companies do not have the interest of prevention at heart. It will benefit the employer. It will increase life and it will do away with pauperization.

Dr. Henry Lyle Winter: It has been my privilege during the last few months to speak and talk on health insurance in various parts of the State at various kinds of medical meetings; and in those conversations and in those various talks I have absorbed a little of what the profession throughout the various parts of the State think of health insurance. There is a general feeling prevalent throughout the profession that some form of state medicine is inevitable and is inevitable in the near future; what that form is going to be, whether it is going to take the form of State Health Insurance, or whether it is going to be an enlargement and extension of our present Health Department or not, has been discussed but I do not think the profession as a whole has formulated any opinion. The profession feel a little doubtful about State medicine or health insurance because the Workingmen's Compensation Law has not worked out to the satisfaction of men in different parts of the State. Some are satisfied, but I think the majority have a great many complaints to make. I was a member of the Council of the State Society when the Workingmen's Compensation Law went through, we were presumed to have some supervision of the Fee Bill. As a matter of fact we had none. We passed on the bill which was presented but there was no opportunity given to us to alter that bill had we seen fit to do so; and it was passed along finally by the Committee as the best thing they could do. Now we have all got to get together on this question of health insurance. We believe probably that it will come to pass. We must take care of ourselves, not selfishly, but because we owe it to ourselves and our families to take care of ourselves in the regulation for the payment of physicians in whatever form this bill may take. It is my opinion that this Committee is doing excellent work. They are in close touch I know from the secretary, with the Association for Labor Legislation, I know that the State Medical Society is taking the thing up in the proper way, and I know that nothing will get away from them, but I think the matter ought to be referred all over the State of New York, and it seems to me that every County Society in the State of New York should take the thing up and discuss it from an educational standpoint. The men do not know what it is, they are anxious to know, they are anxious to co-operate if it is good for them and they are anxious to fight it if it is bad for them, but they want some information.

Dr. Davies: I was very glad to hear the correction that Dr. Lambert made of the previous speaker. I should be very sorry to think that a measure of this kind would have to be introduced at the bedside of three antagonistic forces. From my experience there has never been any antagonism at the bedside, when the matter was for the benefit of the person who occupied the bed. I am very glad that Dr. Lambert gave that correction. Antagonism at the bedside is something that no medical man ever sees or wants to see. It was almost as bad as the assertion that doctors were influenced by the size of their fees as to the advisability of operation. The great question here is, who is bringing this gift of health insurance to us. The laboring men do not want it, the doctors know little or nothing about it, but the men advocating it are the men in the insurance business. Now has the practice of medicine arrived at the point when we are to say to the world, we ask the State and we ask the insurance men to be with us at the bedside. Has our part in the world's work come to that estate when we are in that position? State socialism, that is what it means, and before we embark in that we want to look around and see what it has done in other directions. The State has taken up transportation in this State. We spend $200,000,000 on a system of roads, and $2,000,000 a year for the supervision of the roads, and no intelligent man in this State would waste a two cent stamp in sending a complaint to one of the Commission. That is what State socialism does for the transportation system. Before we embark on it medically we want to study it well and wisely. The laboring men spend hundreds of millions for whiskey and tobacco but we must have the State and the insurance company come in and help them out at the bedside! There is no reason for this law. It is gotten up by professionals entirely independent of the great body of practitioners and our experience with the Workman's Compensation Law has been that it was the most outrageous bunco game on the doctors that ever was perpetrated.

Dr. Warren (Concluding): In regard to the quotation from Dr. Lambert's Detroit discussion of Health Insurance, I did not mean to say there was any antagonism between the duties of the carrier or insurer and the patient and the doctor, but I did intend to say that I agreed with him when he said that there was an antagonism of interest between those groups, for instance, the insurer would have one interest of reducing his cost, and the patient would have the interest of getting his cash benefit, and the doctor would have his interest. That is the antagonism that would to my mind make it impossible for a medical referee to be employed by either of those three groups, and that is my reason for advocating that the medical referee be made a State official. Now, if the medical profession and the State are not ready to turn over to this State medical officer the duty of a public health man and empower him with all the rights and powers of the Health Department, then that is a question for the State. I just merely meant that as a suggestion so as to coordinate this scheme with the health agency and make him amenable to the Health Department as well as to the health insurance system. We have precedents for that in our method of examining arriving aliens in this country. The Public Health Service examines all the arriving aliens and certifies as to their physical condition and these certificates go to the Commissioner of Immigration and he passes on them. I did not intend to say that the final passage of the claim should depend on the Health Officer. I just make the statement that he should sign the certificate of disability and pass it on up. As to the medical officer not being a specialist in health, I presume all of you will agree that it does require some special training for a doctor to become a health officer or a doctor of public health. Very few colleges are giving that, but you must learn that that distinction is coming and coming very fast, that public health is a specialty just as much as the eye or the ear or the surgeon or any of those specialists, I do not want to be misunderstood to say that doctors cannot qualify in that line just as one of you who are in general practice can qualify as a surgeon. I mean you certainly would have to take some special training before you set up as a specialist in that line.

Dr. Delphey (Concluding): This subject has interested us all very greatly. After all, we must get back to the primary fact, do we want it? I do not know whether we want it. I do not know of anyone who wants it except those who are promoting and promulgating it. I have been studying the subject very seriously as I am a member of the Health Insurance Committee of two different organizations and I have not yet arrived at a definite conclusion. Mr. Samuel Gompers, President of the American Federation of Labor, said distinctly that he did not want compulsory health insurance. He is satisfied with voluntary insurance. Mr. James P. Holland, in a letter to me a short time ago in answer to one which I wrote him about a criticism of his action at Albany, said that he was commended by his organization for his action there and was instructed to oppose any similar bill which should again be proposed for enactment. Organized labor does not want it. I do not know about the rest of the laborers. I have heard of no mass meeting throughout the State asking for it.

Mr. Dawson (Concluding): I will proceed just as rapidly as I possibly can to cover a few of the points that have been mentioned. First in regard to the private insurance companies. *Several speakers have referred to it as if they thought that the insurance companies, were to be the carriers, under the proposed draft; the bill drawn by the Social Insurance Committee leaves them out.* Get that absolutely clear, and the members of that committee are absolutely a unit that they should be left out. The reasons for this are that the committee does not think that we ought to try to make a success of that which has been a failure. Private insurance companies in connection with sickness or health insurance of workmen has been a failure the world over, a failure even under voluntary conditions and that they should be part of the machinery by which a great public system should be carried out to be partially sustained by public taxation and the rest of it by compulsory taxation of employers and employees would be infamous. That is my personal judgment. How infamous it would be you can judge from this. There are already in this health insurance business in the United States, insurance companies using 70 per cent of the premiums they receive for expenses. In Germany the average expense is seven instead of seventy. In our own country and in Canada, mutual aid associations carried on by employers and employees on a method similiar to what this public method would be carried on are conducted at rates of expense less than five per cent. I have sent tonight for a report in connection with a large Canadian mutual aid fund of that character with more than ten thousand workmen and an expense of management outside of the medical expenses is 4.32 per cent. Some of you have spoken concerning Workmen's Compensation in this State and those of you who have spoken know perfectly well that the thing which has made it bad from the standpoint of the physicians of this State *is the private insurance companies.* Now concerning the American Association for labor legislation, it is a branch of a great international association for labor legislation extending throughout the world. It is composed of all those persons in every country who are interested in labor legislation from any standpoint with an earnest desire that it be good legislation. It was responsible for the bill at Washington which ripened into law to abolish the use of poisonous phosphorous in the manufacture of matches. It was responsible for the bill which passed at the last session of Congress for giving workmen's compensation to government employees. It has taken this matter up with no desire other than to serve the people of the United States and with no ulterior motives whatever. In regard to this committee may I ask a few moments on account of the number of things that I have observed that have been brought up that had reference to my own address?

Dr. Kopetzky: Certainly.

Mr. Dawson: In regard to this committee and its work which has been spoken of as half baked and unfinished. If that means that the committee does not pretend that anything that it has done is so perfect that it could not be done better, we have no objection. If it is intended to convey the idea that somebody who might be the officer of a private insurance company could have done the work better, then I have but to point to the fact that more than two years' work was devoted to this bill by the legislative drafting bureau of Columbia University. I have but to mention the fact that upon this committee were Dr. Goldwater and Dr. Lambert. I have but to mention the fact that it numbered among its members perhaps the most distinguished authority upon social insurance in this country, also a medical man, Rubinow. I have also but to mention the fact that as regards nursing it had as one of its members Miss Wall. There is not any section from which that committee could draw expert service and assistance in order to make that bill as good as it could be made, that they did not draw it. Now it is criticised because it was introduced in the New York Legislature. It was introduced there because Senator Mills wished to introduce the bill. The bill was drawn up by a committee or a sub-committee not because they had drawn the draft bill before the general consideration throughout the country, but because Senator Mills asked them to draw a bill and it was not the draft bill, but one especially modified for the conditions in New York. Now in regard to the medical profession I would like to say one or two words further. If anybody misunderstood me either to say that I expected the medical profession to serve without compensation in the service of humanity or I expected them to be thinking first, last and all the time of their compensation, then both of those men are mistaken. It will be necessary for the medical profession to be on the job. It will be necessary for adjustments to be made and readjustments to be made of compensation and of other conditions in the medical profession. Nothing can be drawn which will be so perfect that it cannot be changed and ought not to be changed. The very city of Leipsic to which reference was made is absolutely the best example of health insurance and of excellent health conditions to be found anywhere in the world, and of course those physicians found it necessary at times to struggle to obtain better conditions for themselves. They were doing the best work in the world and they deserved to be well compensated, and that is not a criticism of the system. Another criticism was that the bill introduced by us did not originally provide for medical adjusters separate from the medical attendants. That is simply a mistake. From the beginning our bill provided that medical officers be employed by the insurance fund, medical officers whose duties would be to inspect all cases of sickness and pass upon them and whose duties would not involve medical attendance. It has also been suggested that the Health Department was not represented. If you will examine the chart you will find that the Health Department is given a place upon the Advisory Council. You will find in addition to that the Health Department is expected to take part in the committees to which matters relating to medical service are referred, but the Health Department is not invited to come in and perform the functions here, which if they did not perform to the satisfaction of the business people who were conducting the business of the organization, those business people would not be able to hold them to discipline. As regards the attitude of labor unions, I think I will first speak of the attitude of employers. Of course there are employers opposed to this bill. The greatest organizations of employers are falling in line upon health insurance on a compulsory basis. In this State of New York, the Manufacturers' Association, the only general organization of employers in this State, has already declared positively, and after a referendum to their membership, in favor of compulsory health insurance. As regards the labor unions it may interest you all to know that when the first workmen's compensation law was drawn that was ever introduced in any legislature in this country, it was done by the committee of the Social Reform Club in the year 1909 when Mr. Roosevelt was Governor of this State, and without even a hearing, without reading the bill, without appointing a committee to look into it to find out what it was, the Central Labor Union of this city unanimously resolved in opposition to it. That is only an example. Every once in a while we hear the cry come that the Labor Union or the combination of labor unions should have a monopoly of suggesting labor legislation. Now that would be an intolerable situation for all the rest, and not only would it be an intolerable situation for all the rest of us, but to be perfectly frank with you, and as one who is counsel for the Railway Unions in their recent struggle certainly I can speak as one in sympathy with labor unions, and if no legislation relating to labor was ever originated until the organizations themselves originated that legislation, most of the good legislation for labor unions and for labor organizations as well as for workmen would not today be on the statute books. Just one word more concerning that. You might naturally suppose that you would find workmen strongly opposed to compulsion. You frequently hear them argue that way. I was told by John Burns, of the British Cabinet in 1908 that the British workmen would actually have a revolution before he would consent to compulsory insurance. Two years later the British workmen were carrying Lloyd George on their hands for passing the sickness insurance bill.

Dr. Kopetzky: On behalf of the Committee on Medical Economics of the State Society, I wish to extend our thanks to Drs. Warren and Lambert and Mr. Dawson and Mr. Frankel. This committee has tonight, irrespective of the enthusiasm that marked some of the perorations. gained considerable information which we will use and try to digest. When the papers are before us formally, we will take action. There is no further business before the meeting.

County Societies

MEDICAL SOCIETY OF THE COUNTY OF ALBANY.

Regular Meeting, November 23, 1916.

The meeting called to order in the County Court House, by the President Dr. H. Judson Lipes at 8.55 P. M.

The Society proceeded at once to the Scientific Program.

"Hæmatogenous Invasion of the Cerebrospinal Axis in Poliomyelitis," lantern slide demonstration, La Salle Archambeault, M.D., Albany.

This most interesting and instructive paper, showed great diligence of research and originality of thought. Dr. Archambeault by means of his almost unequaled knowledge of nervous anatomy, physiology and pathology; and by the aid of microphotographs of sections taken from the cerebrospinal axis in cases which had died from poliomyelitis, practically convinced all those present that the virus found its way to the cerebrospinal axis by hæmatogenous invasion. Dr. Archambeault further assumed the hypothesis and contended that the mode of transmission of poliomyelitis is probably and largely due to insects, chief among which were the mosquito and biting fly. This the doctor did not consider the only mode of transmission, but he believed it to be the principal one.

Discussion by Drs. Christian, Hacker, Curtis, Shaw, Jenkins, Rooney and C. W. Louis Hacker.

"Strabismus and Its Treatment, with Presentation of Cases," by Edward A. Stapleton, M.D., Hudson.

Owing to the lateness of the hour Dr. E. S. Haswell withdrew his paper.

The following reports of officers and committees were received:

The Board of Censors reported favorably on the applications of Drs. Abraham L. Mann, John E. Heslin and Arthur M. Dickinson, who were duly elected.

The Public Health Committee reported that it was investigating the methods of various cities in handling their epidemics of poliomyelitis and would report further at the December meeting. The Committee had sent the following letter requesting information relative to Infantile Paralysis to the Health Departments of Oneonta, New York, Boston, Philadelphia, Chicago, St. Louis, Buffalo, Rochester and Gary.

"The Public Health Committee of the Medical Society of the County of Albany is very desirous of obtaining information relative to the status of Infantile Paralysis in your city.

"The Committee will feel greatly indebted to you and to your department, if you will supply them with any data which may be in your possession, in accordance with the questions herewith submitted.

"First.—How many cases have developed in your city during 1916.

"Second.—When did the first case develop?

"Third.—Have you quarantined all persons exposed to the disease or only children?

"Fourth.—What has been the mortality?

"Fifth.—What is the population of your city?

"Sixth.—What has been the approximate expense to the city to control the disease?

"Seventh.—What has been the commercial loss due to the presence of the disease?

"Eighth.—How many public schools in your city?

"Ninth.—How many school nurses in your city?

"Tenth.—What percentage of patients attended school?

"Thanking you most heartily for your kindly consideration and courteous attention to this matter, I am,

"Very sincerely yours,
"(Signed) C. W. Louis Hacker, M.D.
"Chairman, Public Health Committee."

The Committee also made the following recommendations relative to the handling of traffic in the city.

"The Committee desires to call the attention of the society to the endangering of life or the possibility of serious accident that may result from the failure of a great number of drivers of horse-drawn vehicles to comply with the traffic regulations. It is not an uncommon sight in some parts of the city to see many of these persons driving on the wrong side of the street, and at night many fail to display a lamp that can be seen from the rear.

"The use of exceedingly brilliant headlights by automobile drivers is another source of possible danger to persons approaching from the opposite direction.

"The Committee recommends that the society take such action as will help to obviate these conditions as far as possible."

The Committee on the President's Address, reported as follows:

"Dr. Conway * made definite recommendations which will be considered under the headings, the Workmen's Compensation Law, the Sickness and Health Insurance Act, Garbage Disposal, Clean-up Week, Selection of Qualified Men as Insanity Experts and the Discussion of Medical Subjects before the Society previous to publication in the lay-press by individuals.

"In considering the Workmen's Compensation Law, we feel that this society should go on record as opposed to the dictation of fees by insurance companies and that we look with disfavor on any member accepting contracts with companies at fees below those usual in this community.

"The Question of the Health and Sickness Insurance Act is to be considered at a special meeting of this Society to be held December 13th. We, therefore, refrain from making special recommendations.

"The Garbage Disposal Plant, urged during the past eight years by this Society, has been started, so that we need make no extra suggestion at this time. "Clean-up Week" has been abolished and we are glad to note that the money used will now be expended in proper constant sanitary inspection under control of the Board of Health.

"We strongly urge the immediate adoption of the following recommendations:

"The Medical Society of the County of Albany recommends that a list of competent alienists be immediately prepared and that we urge the officials of the city and county of Albany to select examiners from this list.

"Finally, that owing to the discredit that attaches to the expression of personal belief by individual physicians on matters that may be of interest and importance to the public and which have not been either discussed in the Society or if they have been considered, the sentiment of the Society has not been determined, it is recommended that the members should at least express their opinion before the Society previous to making public pronouncement of matters that are merely of opinion that may be disputed so that they be subject to open discussion in the Society. The opinion of the Society may then be rendered with reason and with the force not of one individual but with the united opinion of the representative medical body of this county.

"(Signed) Arthur J. Bedell,
"James F. Rooney,
"Joseph P. O'Brien."

Dr. Rooney read a letter from the Commissioner of Charities and Correction, Alwin C. Quentel, relative to the erection of a Drug Addiction, Tuberculosis and Alcoholic Pavilion in connection with the new County Hospital. The Commissioner's suggestion was endorsed by an unanimous vote.

Dr. Rooney, Chairman of the Committee on Legislation of the State Society, called attention to the inequitableness of special laws of the Narcotic and Insurance class; and the need of the profession to discuss completely all measures of this sort, and stated that no action in favor of proposals of this kind should be taken until time enough has elapsed to state the opinion of the physicians as to their need and propriety.

A special invitation was extended to all the near by County Societies to attend the meeting of the Albany County Society, on December 13th, and will be devoted to the consideration of Compulsory Health Insurance.

BROOME COUNTY MEDICAL SOCIETY.

Annual Meeting, Binghamton, N. Y.

Tuesday, October 17, 1916.

The meeting was called to order in the Public Library building and the following officers were elected: President, George H. Fox, Bingham; Vice-President, Mabel A. Martin, Binghamton; Secretary, Henry D. Watson, Binghamton; Treasurer, William H. Hobbs, Binghamton; Delegate State Society, Frank Preston, Binghamton. Censors: John G. Orton, John M. Farrington, Daniel S. Burr, John H. Martin, Charles S. Butler.

The Scientific Session consisted of the following papers:

Local Anæsthesia, William Henry Hobbs, M.D., Binghamton.

Report of Sixth District Branch Meeting, John C. S. Lappeus, M.D., Binghamton.

La Grippe, Lester H. Quackenbush, M.D., Binghamton.

QUEENS-NASSAU MEDICAL SOCIETY.

Annual Meeting, Jamaica, N. Y.

Tuesday, November 28, 1916.

The meeting was called to order in the Surrogate's Court Room with a good attendance, especially from Queens County. Upon recommendation of the Board of Censors, Drs. Morris Deutsch, Jacob N. Feinberg, Thomas Freundlich, Joseph D. Hallinan, F. P. Hatfield and Maria M. Vinton were elected members.

The following officers were elected: President, J. J. Kindred, Astoria; Vice-President, J. Ensor Hutcheson, Rockville Center; Secretary-Treasurer, James S. Cooley, Mineola; Censors, R. F. Macfarlane, M. M. York, Samuel Hendrickson, F. F. Schirck, J. S. Kerrigan; Historian, Walter Lindsay; Delegates to State Society, C. B. Story, E. H. Pershing, L. S. Rau; Auditing Committee, M. M. York and C. W. Cole.

Scientific Session consisted of a paper, based upon personal experiments and observations, Carl Boettiger, M.D., Long Island City, "The Determination of Function in Chronic Renal Disease."

Dr. Leonard S. Rau of Lawrence, read a paper based on personal experience, "Antalgesine in Labor," followed by an instructive discussion.

In place of a formal address, President Pershing reported a case of diphtheria which occurred in his practice.

In accordance with the recommendations of a Special Committee, as adopted by the meeting, the President appointed the following Committee to arrange for from four to six special scientific meetings during the coming winter: Drs. H. A. Houghton, George K. Meynen, Carl Boettiger, J. J. Kindred and S. A. Marshall.

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* Address made by F. C. Conway, President, Annual Meeting, May, 1916.

MEDICAL SOCIETY OF THE COUNTY OF CAYUGA.

Annual Meeting, Auburn.

Thursday, November 9, 1916.

The meeting was called to order at the Woman's Union Building at 7.30 P. M.

The following officers were elected for the ensuing year: President, Francis W. St. John, Weedsport; Vice-President, Oscar B. Swayze, Auburn; Secretary, George H. Beers, Auburn; Treasurer, Frederick A. Lewis, Auburn; Delegate to State Society, Louis F. O'Neill; Alternate, Oscar B. Swayze; Censors, William H. Coe, Charles M. Stever, Raymond C. Almy, John R. B. Glasgow, Harry E. Anthony.

Following the business session Dr. William Mortimer Brown, of Rochester, President of the Seventh District Branch, gave a short address, which was followed by a banquet that was greatly enjoyed by all present.

MEDICAL SOCIETY OF THE COUNTY OF GREENE.

Annual Meeting, Cairo.

Tuesday, October 10, 1916.

The following officers were elected for the ensuing year: President, L. Breslau Honeyford, Catskill; Vice-President, Alton B. Daley, Athens; Secretary, Robert Selden, Catskill; Treasurer, Charles E. Willard, Catskill; Delegate to State Society, Robert Selden, Catskill; Chairman Committee on Legislation, Percy G. Waller; on Public Health Committee, Edwin N. Huntington.

The business meeting was followed by a general discussion of infantile paralysis.

COLUMBIA COUNTY MEDICAL SOCIETY.

Annual Meeting, Hudson.

Tuesday, October 3, 1916.

The meeting was called to order in the Worth House by the Vice-President, Rosslyn P. Harris.

The report of the Secretary and Treasurer was read and ordered placed on file.

Three new members were elected.

The following officers were elected for the ensuing year: President, Rosslyn P. Harris, Hudson; Vice-President, Nathaniel P. Brooks, New Lebanon; Secretary-Treasurer, John W. Mambert, Hudson; Delegate to State Society, Hamilton M. Southworth; Alternate, Clark G. Rossman.

The scientific portion of the program consisted of a paper on cystitis by Henry C. Galster, M.D., Hudson.

Discussion opened by Louis Van Hoesen, M.D., Hudson.

THE MADISON COUNTY MEDICAL SOCIETY.

Annual Meeting, Oneida.

Tuesday, October 3, 1916.

After the transaction of the regular routine business the following officers were elected for the ensuing year: President, Stowell B. Grant, Munnsville; Vice-President, J. Frederick Rommel, Canastota; Secretary, George W. Miles, Oneida; Treasurer, Nelson O. Brooks, Oneida; Censors, William Taylor, Charles H. Perry, John R. Eaton; Delegate to State Society, Nelson O. Brooks.

The Scientific Session was opened by a short paper by Dr. George F. Mills, Oneida, on infantile paralysis which was followed by an informal discussion based on a few cases which had occurred in the county.

ONTARIO COUNTY MEDICAL SOCIETY.

Annual Meeting, Oakmount.

October 10, 1916.

The meeting was held at the Ontario County Tuberculosis Sanatorium. The following members were present: Drs. McDowell, Hallenbeck, Armstrong, Clapper, Selover, Robson, Jewett, Bing, Mason, Mead, Smith, Sylvester, Beahan, Eiseline, Wheeler and Preston. Guests present were Drs. Leary, Brown, Clark and Nesbitt of Rochester, Chapin and Wiley of Canandaigua, Allen of Seneca, Cooke of Shortsville, and Rev. James Dougherty of Canandaigua.

The meeting was called to order by the President, Dr. McDowell. The Secretary's minutes of the last meeting were read and approved. The President gave the report of the Comitia Minora. The report of the Treasurer was read and adopted.

The following officers were elected for 1917: President, Charles W. Selover, Stanley; Vice-President, Malcolm S. Woodbury, Clifton Springs; Secretary and Treasurer, Daniel A. Eiseline, Shortsville; Censors, Orlando J. Hallenbeck, James J. Collie and Joseph A. Sanders; Delegate State Society, Alfred W. Armstrong; Alternate, Orlando J. Hallenbeck.

The scientific program consisted of a symposium on pulmonary tuberculosis, in which Dr. Montgomery Leary, Superintendent of Iola Sanatorium, discussed the diagnosis and Dr. S. R. Wheeler, Superintendent of Oakmount Sanatorium, the sanatorium treatment of the disease. A clinic was given by Dr. Eugene N. Nesbitt, of the Iola Sanatorium, who used some of the patients at the institution to demonstrate some of the early signs of pulmonary tuberculosis.

A delectable lunch was served by the nurses of the Sanatorium.

MEDICAL SOCIETY OF THE COUNTY OF ORLEANS.

Annual Meeting, Medina.

October 10, 1916.

The following officers were elected for 1917: President, George F. Rogan, Medina; Vice-President, Ralph E. Brodie, Albion; Secretary-Treasurer, Fremont W. Scott, Medina; Censors, Edward Munson, Leon G. Ogden, Charles E. Padelford.

Scientific Session.

"Ophthalmic Points of Interest to the General Practitioner," F. Park Lewis, M.D., Buffalo, N. Y.

"Obstetrical Topics of Interest to the General Practitioner," Francis C. Goldsborough, M.D., Buffalo, N. Y.

MEDICAL SOCIETY OF THE COUNTY OF SENECA.

Annual Meeting, Willard.

October 12, 1916.

The meeting was held at the Willard Hospital at the special invitation of Dr. R. M. Elliott, Superintendent, who entertained those present at dinner. There were twenty-eight members present out of a possible thirty, also two honorary members, Drs. Richard Day and Elias Lester, and a number of guests, both lay and professional.

The following officers were elected for the ensuing year: President, Edwin P. McWayne, Fayette; Vice-President, Robert M. Elliott; Secretary-Treasurer, Fredericw W. Lester, Seneca Falls.

Scientific Session.

1. President's Address, "The Present Outlook for the Medical Profession," Adolphe Letellier, M.D., Seneca Falls.

2. "Cardiac Irregularities," John M. Swan, M.D., Rochester.

3. "Cerebral Syphilis and General Paresis," William H. Montgomery, M.D., Willard.

Resolutions of respect were adopted for the late Dr. J. E. Medden, of Seneca Falls, who died early in 1916.

Resolutions of thanks were adopted to Dr. Elliott, Dr. Swan and Dr. Montgomery.

Resolution was adopted that Chiropractic violations of the Medical Practice Law be reported to a committee, who would take active steps to place the evidence obtained in the hands of the District Attorney for prosecution.

MEDICAL SOCIETY OF THE COUNTY OF ST. LAWRENCE.

Annual Meeting, Ogdensburg.

Tuesday, October 3, 1916.

The meeting was called to order by the President at the Century Club, there being about thirty members present.

The following officers were elected for the ensuing year: President, Paul G. Taddiken, Ogdensburg; Vice-President, Clayton G. Andrews, Canton; Secretary, Samuel W. Close, Gouverneur; Treasurer, Andrew H. Allen, Gouverneur; Censors, Benjamin F. Drury, Richard H. Hutchings and Daniel M. Taylor; Delegate State Society, William G. Cooper, Ogdensburg.

The President, Dr. Frederick F. Drury, gave a very interesting address dealing with the history of the medical profession in St. Lawrence County during the past thirty years, which was followed by a paper on Meningitis by William G. Cooper, M.D., and one on Poliomyelitis by Daniel M. Taylor, M.D., and Hugh S. Gregory, M.D.

MEDICAL SOCIETY OF THE COUNTY OF WESTCHESTER.

Business Session.

The following officers were elected for the ensuing year: President, W. Stuart Woodruff, Mount Vernon; Vice-President, Henry Moffat, Yonkers; Secretary, Harrison Betts, Yonkers; Treasurer, Walter W. Mott, White Plains; Censors, John W. Smith, Samuel E. Getty, Bertrand F. Drake; Chairman Committee on Public Health, Le Roy W. Hubbard, M.D., Mt. Vernon; on Legislation, William L. Russell, Chairman; Delegates to State Society, William H. Purdy, Merritt W. Barnum; Alternates, Archibald E. Chace, M.D., Jason S. Parker, M.D., John J. Sinnott, M.D., Elton G. Littell, M.D.

Scientific Session.

1. "Labyrinthitis," John B. Rae, M.D., New York City.
2. "Some Remarks on Diagnosis of Eye Diseases," Matthias L. Foster, M.D., New Rochelle.
3. "Nasal Obstruction," August L. Beck, M.D., New Rochelle.
4. "Focal and General Infections in Their Relationship to the Eye, Teeth, and Tonsils,"
    (a) Clinical—Frank N. Irwin, M.D., White Plains.
    (b) Bacteriology—James G. Dwyer, M.D., New York City.
    (c) Radiography—Frederick M. Law, M.D., New York City.
5. "Nasal Sinuses," Charles W. Dennis, M.D., White Plains.

Books Received

Acknowledgments of all books received will be made in this column and this will be deemed by us as a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

Mechanisms of Character Formation, An Introduction to Psycho-analysis, by William A. White, M.D. Macmillan Co., New York, 1916. Price, $1.75.

Constipation, Obstipation and Intestinal Stasis, by Samuel Goodwin Gant, M.D., LL.D., Professor of Diseases of the Colon, Sigmoid Flexure, Rectum and Anus in the New York Post-Graduate Medical School and Hospital. Second edition enlarged. Octavo of 584 pages, with 258 illustrations. Philadelphia and London, W. B. Saunders Company, 1916. Cloth, $6.00 net; Half Morocco, $7.50 net.

The Physician's Visiting List for 1917, 66th year of publication, includes an entirely new dose list prepared in accordance with the new United States Pharmacopoeia. This will prove an exceedingly useful feature, as there were many changes, improvements in standards, new drugs and other material inserted. This list gives the dose in both the apothecary and metric systems and the solubility and important incompatibilities when called for.

Several other new tables have been inserted such as isolation periods in infectious diseases, table of mortality, etc. Philadelphia, P. Blakiston's Sons & Co. Price, $1.25.

Applied Immunology, the Practical Application of Sera and Bacterins Prophylactically, Diagnostically and Therapeutically, with an appendix on Serum Treatment of Hemorrhage, Organotherapy and Chemotherapy, by B. A. Thomas, A.M., M.D., Professor of Genito-Urinary Surgery in Polyclinic Medical College. Instructor, Surgery, University Pennsylvania. R. H. Ivy, M.D., D.D.S., Assistant Instructor in Surgery, University of Pennsylvania; Instructor in Genito-Urinary Surgery in the Polyclinic Medical School, Philadelphia. 5 colored inserts and 68 illustrations in text. Second edition revised. Philadelphia and London, J. B. Lippincott Co., 1916. Price, $4.00.

Pharmacology and Therapeutics, for Students and Practitioners of Medicine, by Horatio C. Wood, Jr., M.D., Professor of Pharmacology and Therapeutics in the University of Pennsylvania. Second Vice-Chairman of the Committee of Revision of the U. S. Pharmacopoeia. Second edition. Philadelphia and London, J. B. Lippincott Co., 1916. Price, $4.00.

Book Reviews

The Medical Clinics of Chicago, Vol. I, No. 1, These clinics will be devoted exclusively to Internal Medicine and will appear bi-monthly, six numbers to a volume. 1915. Price in paper, $8.00—cloth binding, $12.00. W. B. Saunders Co., Philadelphia and London.

"Medical Clinics" adds another to the long list of Reviews in the realm of medical reading. Published by Saunders it sets out to present to physicians at regular intervals word pictures from some of the best clinical teachers covering the management of cases in the various departments of internal medicine. Clinics in your office, so to speak, with clinical teachers of high repute. Rare and common cases are presented and their best management set forth. W. S. H.

Rational Athletics for Boys. By Frederick J. Reilly, Principal, Public School No. 33, the Bronx, New York City. 12mo., 125 pp. Boston, New York and Chicago, D. C. Heath & Co.

In a small book of about one hundred pages this author describes the system of athletic training in use in one of New York's public schools for the past few years, the success of which has been so marked as to warrant its introduction and use more widely.

The plan combines general athletic training with the interest which attaches to contests and competition, thereby making every one a part of the team.

Originally planned for young boys, the scheme is applicable to high schools, colleges and clubs.

There are nine chapters and an appendix giving detailed description of the exercises, the apparatus, and the results achieved, with a chapter or two on the same exercises for girls and adults. Twenty-three illustrations portray the character of the work.

A book valuable to those engaged in school training and similar health work. W. S. H.

Autoplastic Bone Surgery. By Charles Davison, M.D., Prof. Surgery and Clinical Surgery, University Illinois, College of Medicine. Surgeon Cook County and University Hosps., and Franklin D. Smith, M.D., Clinical Pathologist University Hosp. 174 illustrations. Lea & Febiger, Philadelphia and New York. 1916.

This is a practical work of importance. Monographs of this kind are the back bone of a library. It should be read by everyone who is doing open bone work. As the title indicates, the book deals with a central idea and expresses it well. Though it follows closely upon Albee's work recently discussed in these columns, the last word upon this subject is far from said. It is but a newly invaded field and our knowledge is in a constant state of flux. Many conflicting opinions continue to be held in regard to the regeneration of bone. Deductions from clinical and experimental studies are given by the authors in this book thus allowing the reader to draw his own conclusions.

Eleven chapters in 350 pages are devoted to transplantation and regeneration of bone, indications for autoplastic bone surgery, instruments and technic, autoplastic repairs of recent fractures and of ununited autotures, of acquired and congenital defects of bones; autoplastic immobilization of tuberculous spondilitis and spondylolisthesis. A valuable addendum appears at the close of certain chapters in which is given a summary of the contents and references to literature.

Indications for autoplastic transplantation of bone as given by Davison and Smith coincide rather accurately with those of Albee. Autoplastic bone transplantation is advised in that group of recent simple fractures in which it is necessary to expose the fracture by incision to effect proper reduction and which require internal alignment and fixation and external immobilization to secure satisfactory end-results. This chapter, together with one dealing with indications in ununited fractures, comprises about one-half of the book.

This type of surgery is very alluring, but it must be remembered that it has a rather restricted field, that it may be safely undertaken only under the most perfect conditions of technic and asepsis. We venture that this method of internal fixation will supersede the older foreign body appliances. Royale H. Fowler.

The Clinics of John B. Murphy, M.D., at Mercy Hospital, Chicago. Vol. IV, No. 3. Octavo of 196 pages, 90 illustrations. 1915. Published bimonthly. Price per year: Paper, $8.00. Cloth, $12.00. W. B. Saunders Company, Philadelphia and London.

For some unknown reason, the June issue, 1915, has been delayed in reaching the reviewer's hands. It contains clinical talks on the diagnosis of injuries of the Carpus, Appendicitis, intestinal obstruction. William J. Mayo discusses unsuccessful gastro-enterotomy for ulcer. Comments are made in Dr. Murphy's usual style upon friction burn of the ankle and closure of the defect described by a pedicled flap. A series of drawings is shown, illustrating the Murphy method of suturing a pedicled muscle flap into a laminectomy defect. The advantages of this are that the dura is protected, dead space is obliterated, danger of deep infection is lessened and escape of cerebro-spinal fluid through the wound is less likely to occur.

Other case reports and discussions include Embryonic Tumor of the Testicle, Tuberculosis of the Spermatic Cord and Epididymis, Tendovaginitis of the Thumb, Exostosis of the Os Calcis, Congenital Perineal Fecal Fistula, Hypernephroma of the Kidney, Myeloid Sarcoma of the Malar Bone and Giant-cell Sarcoma of the Mandible.

The wonderfully creative mind of John B. Murphy is at rest. Originality was his most marked characteristic. He was a true pioneer and a constant seeker after truth, the greatest teacher of clinical surgery of his generation who in his allotted span of years did more for American Surgery than any other surgeon of his day. He invaded and illumined so many fields! The anastomosis button, the appendix and peritonitis, the peripheral nerves, the pelvis and the kidney, the lungs, the bones and the joints—these subjects are but a few which have been embellished by this truly great constructive genius.

His masterpieces will live on, each contribution stands a milestone in the progress of surgery, each monograph marks an epoch and testifies to colossal fertility and activity—truly a record of almost superhuman achievement. Royale H. Fowler.

Radium, X-Rays and the Living Cell, with physical introduction. By Hector A. Colwell, M.B. (London), D.P.H. (Oxford), late assistant Cancer Research Laboratories, and Sidney Russ, D.Sc. (London), Physicist Middlesex Hospital, London. G. Bell & Sons, Ltd., 1915, Macmillan Co., New York City.

This work, as the title indicates, is an exhaustive essay on the action of Radium and the X-ray upon the cells.

Part one discusses the physical properties of the elements; the rest of the book treats of the action upon both healthy and diseased tissues.

The work is so up to date and the subject has been so clearly elucidated, that one can understand and appreciate the advances that have been made in the application of the valuable therapeutic measures.

The illustrations are excellent.

Child Training as an Exact Science, A Treatise Based on the Principles of Modern Psychology, Normal and Abnormal. By George W. Jacoby, M.D. Consult. Neurologist Hosp. Nervous Diseases, German, Beth Israel and Red Cross Hosps. Illustrated. Funk & Wagnalls Co., New York and London. 1914. Price, $1.50 net.

This is a little book on the normal and pathological psychology of childhood, mainly the latter. It describes briefly the anatomy and physiology of the nervous system and then takes up some of the attributes and development of the child mind. The author then proceeds to psycho-pathology as caused by organic defects known or surmised, and to functional disorders. The main theme of the book is the avoidance of such psychic abnormalities and their modification and a cure when possible.

The book is written for the teacher, particularly of the abnormal, and will doubtless be of value to him. Its title is a trifle misleading in its pretentiousness, inasmuch as its perusal, while leading in the right direction, will by no means convert child-training from an inexact into an exact science but will carry one a little distance only. W. D. Ludlum.

Deaths

Charles Louis Beil, M.D., New York City, died November 30, 1916.

John H. Benjamin, M.D., Riverhead, died November 26, 1916.

James A. Breakell, M.D., New York City, died November 18, 1916.

J. R. Brown, M.D., Seward, died October 13, 1916.

W. J. Coppernoll, M.D., Newark, died October 14, 1916.

David J. Culver, M.D., Harrisville, died October 29, 1916.

Thomas Joseph Dunn, M.D., New York City, died November 23, 1916.

Norman Howe Liberty, M.D., Mineville, died November 13, 1916.

Henry D. Long, M.D., New York City, died October 22, 1916.

Henry Selden Norris, M.D., New York City, died November 19, 1916.

Jacob B. Peters, M.D., Walden, died November 23, 1916.

Christian A. Weinbach, M.D., Buffalo, died November 9, 1916.

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have assumed today an importance which the medical profession never before imagined. This is because the toxemia which may accompany these conditions, with its train of detrimental results, has been demonstrated; while the fact is recognized that cases may be treated successfully by the physician.

It has been shown that Ptosis, Intestinal Stasis and Constipation do not necessarily occur together. Each may exist by itself, or any degree of combination of two or all may obtain. The essential matter is to prevent the toxemia by preventing an abnormal delay in the passage of material along the gastro-intestinal tract and by hindering development of bacteria.

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VOLUME 16 MAY, 1916 NUMBER 5

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